1891

PROCEEDINGS

OF THE

MADRAS GOVERNMENT

IN THE

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH,

FOR THE

MONTH OF FEBRUARY 1891

Printed by Authority.

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1891.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

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PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT,

FOR THE MONTH OF FEBRUARY 1891.

Irrigation.
Account.

READ—the following paper :—

No. 17 I.

Note by the Chief Engineer for Irrigation.

The following surrenders have been reported :—

Provincial.
43. Minor Works and Navigation.
Irrigation and Navigation Works for which Capital and Revenue Accounts are kept.
Capital Account.
Pálár Anicut System.

	RS.	RS.
Chingleput division, Tirupakuli tank	2,000	
Establishment	460	
		2,460
Revenue Account.		
Dumagúdiem Canal.		
Godávari Eastern division, maintenance and repairs ...	2,400	
Establishment	552	
Tools and plant	222	
		3,174
Vedarniem Canal.		
Negapatam division, maintenance and repairs	5,000	
Establishment	1,150	
		6,150
Total ...		11,784

2. Owing to the necessity for revising the sanctioned estimate for the Tirupakuli tank, the current year's grant for it cannot be utilized. The grant for the Dumagúdiem canal is found to be more than required. The Provincial grant for the Vedarniem canal is not required, as a similar amount has been allotted from Local funds towards the share chargeable thereto of the expenditure incurred on the canal in previous years. Of the sum surrendered from the grant for the Pálár anicut system under Capital account and held in reserve in G.O., No. 660 I., dated 14th November 1890, Rs. 193 for works and Rs. 45 for establishment remain unappropriated. Under Irrigation and Navigation works for which neither Capital nor Revenue accounts are kept, there is an unappropriated balance of Rs. 10, viz., Rs. 9 under original works

and one rupee under establishment. The total amount available for appropriation is Rs. 12,032.

3. The Superintending Engineer, I Circle, has applied for an allotment of Rs. 2,000 for protecting the Gowtami-Godávari river margin near Maskapalli in the Godávari Eastern division in addition to the existing grant of Rs. 8,000, which has already been exceeded by Rs. 1,103 to the end of November last, and also an allotment of Rs. 8,000 for raising the right bank of Gowtami-Godávari from head to junction with the Bank canal bank in the Godávari Western division in addition to the existing grant of Rs. 17,226 for that work, against which the expenditure to the end of November was Rs. 17,340. The Superintending Engineer, II Circle, has applied for an allotment of Rs. 3,000 for improving the Turimerla tank in the Nellore division, for which estimates were sanctioned in G.O., No. 584 I., dated 16th October 1890.

4. The amount of Rs. 12,032 available may, it is recommended, be appropriated as shown below :—

	RS.	RS.
Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept.		
Nellore division, Turimerla tank improvements	3,000	
Establishment	690	
Tools and plant	45	
		3,735
Agricultural Works.		
Godávari Eastern division, protecting the Gowtami-Godávari river margin near Maskapalli	2,000	
Godávari Western division, Gowtami-Godávari from head to junction with the Bank canal bank	4,664	
Establishment	1,533	
Tools and plant	100	
		8,297
Total ...		12,032

CHEPÂK,
26th January 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 2nd February 1891, No. 92 I., Public Works.

The appropriations proposed by the Chief Engineer for Irrigation are sanctioned.

2. The following deferred telegram will be sent to the Superintending Engineer, I Circle :—

"Your Nos. 1807 G.D., 11th ultimo, 1944 G.D., 2nd instant. Addition allotments Rs. 2,000 for Gowtami-Godávari near Maskapalli Eastern division and Rs. 4,664 for Gowtami-Godávari Western division sanctioned."

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, ,, ,, II ,,
,, ,, ,, V ,,
,, Examiner, Public Works Accounts.
,, Revenue Department.
,, Local and Municipal Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 2nd.

Recd. *Encl.*

G.O., 2nd Feb. 1891, No. 92 I.

FEBRUARY.

Appropriations

Sanctioning certain — proposed by the Chief Engineer for Irrigation.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

No. 15 I.

Note by the Chief Engineer for Irrigation.

The following modifications of allotments for establishment charges under 42. Major works (Working expenses) are rendered necessary by the variations between the budget and revised estimates of revenue for the current year :—

Systems.	Budget estimate.	Revised estimate.	Difference.	Modifications of allotments.		Remarks.
				Increase.	Decrease.	
Direct receipts.	RS.	RS.	RS.	RS.	RS.	
Kurnool-Cuddapah canal ..	8,000	7,000	1,000	..	100	At 10 per cent. on revenue.
Cauvery delta	7,000	7,250	250	25	..	
Portion of Land Revenue due to Irrigation.						
Godávari delta	19,87,000	20,26,000	39,000	2,340	..	At 6 per cent. on revenue.
Sangam anicut	1,45,000	1,36,000	9,000	..	540	
Kurnool-Cuddapah canal ..	80,000	65,000	15,000	..	900	
Barúr tank	4,000	3,000	1,000	..	60	
Srívaikuntham anicut ..	1,11,000	1,03,000	8,000	..	480	
Total ..	..	..	..	2,365	2,080	
Decrease ..	..	..	..	2,080	..	
Net increase ..	..	..	..	285	..	

The above modifications of allotments are recommended for sanction, the net increase of Rs. 285 being met by reducing the grant for the Godávari Eastern division under tools and plant from Rs. 38,330 * to Rs. 38,045.

* Inclusive of the grant for the Dowlaishweram Workshops.

CHEPÂK,
26th January 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

Order—dated 2nd February 1891, No. 93 I., Public Works.

The modifications of allotments proposed in the foregoing note by the Chief Engineer for Irrigation are sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
To Superintending Engineers, I, II, III, IV and VI Circles.
To the Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 2nd.

Recd. *Encl.*

G.O., 2nd Feb. 1891, No. 93 I.

PEBRUARY.

Modifications of allotments

The — proposed by the Chief Engineer for Irrigation for establishment charges under 42. Major works (Working expenses), sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From W. C. LEWIS, Esq., Assistant to the Chief Engineer for Irrigation in charge of Tank Restoration Scheme, to the Chief Engineer for Irrigation, dated 20th January 1891, No. 92 T.

I have the honor to submit, for sanction, an estimate, amounting to Rs. 120, for scientific and mathematical instruments required for No. I Party, Tank Restoration Scheme, and to request that you will be so good as to provide the necessary fund for meeting the cost from the budget grant of Rs. 1,000 provided for special tools and plant.

ORDER—dated 2nd February 1891, No. 94 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation.
Works for which neither Capital nor Revenue Accounts are kept.
Tank Restoration Works.
Madura Division.
III. Tools and Plant.
New Supplies.

	Estimate. RS.
Purchasing scientific and mathematical instruments required for No. I Tank Restoration Survey Party	120

2. This sanction has been registered as No. 126 I. of 1890-91.

3. Rupees 120 are appropriated from the current year's existing budget grant of Rs. 1,000 for special tools and plant required for tank restoration works to cover the outlay now sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation, with one estimate.
„ Examiner, Public Works Accounts.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 2nd.

Recd. *Encl.*

G.O., 2nd Feb. 1891, No. 94 I.

FEBRUARY.

Instruments

Estimate of Rs. 120 for purchasing scientific and mathematical — for No. I Tank Restoration Survey Party, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 17th January 1891, No. 1257 T. C.

I have the honor to submit, for your approval and sanction of Government, the accompanying plans and estimate, amounting to Rs. 3,200, for improving the Appananallur tank in the Musiri taluk, Trichinopoly district.

2. It would appear from the report attached to the estimate that the requirements of the tank have been fully ascertained and that the works estimated for are absolutely necessary to render the tank safe and efficient.

3. The rates entered are fair and I request that the estimate may be sanctioned as soon as possible.

ENCLOSURE.

REPORT to accompany the estimate for improving the Appananallur tank.

This tank is situated in lat. 11° 3,' long. 77° 24' and about 8 miles to the north-west of Musiri and is numbered 140 in the list of Imperial works. It has an ayacut of 226 acres, yielding an annual revenue of Rs. 1,223.

2. It is rain-fed and receives its supply from a drainage basin of 20 square miles. Its discharge may be calculated at 3,312 cubic feet a second, the co-efficient being 450. To discharge this surplus it requires a weir 349'* in length. At present the tank has two weirs with an effective total length of 363' which is ample for the disposal of surplus at a head of 2' over crest.

* Length of weir calculated by formula $D = \frac{2}{3}$ c L d $\sqrt{2 gd}$. Where c = ·628.

3. This tank breached in April 1889 and the breaches were closed at a cost of Rs. 437-5-9 out of an estimate of Rs. 540, the saving being effected by not carrying out the repairs to the wings of weir No. 2 which require to be entirely reconstructed, the present wings being simple dry rough stone revetments, of which portions have fallen down.

4. The tank irrigated during the last five years an average of 239·90 or 240 acres, yielding a revenue of Rs. 1,217-13-0. To properly irrigate this extent, it theoretically requires 48 millions cubic feet of water at ·2 millions per acre.

5. The tank at F.T.L. 49·00 has a waterspread of about 9·55 millions square feet and a mean depth of 2·02 feet or a capacity of 19·10 millions cubic feet and it will have to be filled more than twice for the full area of irrigation.

6. The tank has two sluices, both of which are out of order and buried up in the deep bed. It is proposed to reconstruct both the sluices as per plan submitted herewith.

7. The portions of revetment requiring repairs are shown in the sections and the estimate herewith sent gives the different taks. The bund requires raising and strengthening as per sections. It will be raised 3½ feet above M.W.L. with a top width of 6 feet and slopes 1½ to 1 and 2 to 1 in front and rear, respectively.

8. The soil in the bed of the tank being silt, the raising of the bank till C.S. No. 24 will compose of morum found in the bed of the surplus stream in rear, from section No. 24 to 31 from the earth in the rear fields free of compensation and from section No. 31 to end of gravel found in rear of bank. The removal of prickly-pear on slopes of bank also provided for.

Weir No. 1 requires sundry repairs and lowering by 6," costing in all about Rs. 30 and for which provision is allowed in the estimate.

Weir No. 2 will be provided with proper masonry wings as per plan accompanying. The work will be of rough stone in chunam; the old rough stones of the present wings will be utilized for the purpose.

For other particulars *vide* plan and statement of details accompanying.

The whole work will be done in accordance to the standard specification.

ORDER—dated 2nd February 1891, No. 96 I., Public Works.

The following estimate is sanctioned:—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept.
Trichinopoly Division.
Original Works.

	Estimate.
	RS.
Improving the Appananallur tank, No. 140, of list of "Imperial works"	3,200

2. This sanction has been registered as No. 127 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle, with ten enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.
" Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 2nd.

Recd. *Encl.*

G.O., 2nd Feb. 1891, No. 96.I.

FEBRUARY.

Appananallur Tank, Trichinopoly Division

Estimate of Rs. 3,200 for improving the —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

No. 18 I.

Note by the Chief Engineer for Irrigation.

The preliminary issue of the budget estimates for "Major Works" for 1891-92 (embodying the revised estimates for 1890-91) herewith submitted works up to the grants provisionally sanctioned by the Government of India in its Nos. 1 A.I. and 2 A.I., dated 5th and 8th January 1891, respectively, and in the telegram,* dated 27th January 1891.

* *Vide* G.O., No. 87 I., of 30th January 1891.

2. The budget estimates of receipts and expenditure for 1891-92 compare with the revised and budget estimates for 1890-91 and the actuals of 1889-90 as shown below :—

——	Budget estimate for 1891-92.	Revised estimate for 1890-91.	Budget estimate for 1890-91.	Actuals for 1889-90.
	RS.	RS.	RS.	RS.
Receipts.				
XXIX. Major Works—				
Direct receipts	2,36,000	2,32,000	2,47,000	2,45,926
Portion of Land Revenue due to Irrigation ...	50,59,700	47,34,800	46,32,200	46,43,758
Total ...	52,95,700	49,66,800	48,79,200	48,89,684
Expenditure.				
35. Protective Works, Irrigation ...	3,50,000	4,42,000	3,50,000	3,14,215
42. Major Works (Working Expenses)	11,52,000	12,13,000	10,93,000	10,87,195
49. Major Works (Construction) ...	13,75,000	15,50,000	13,00,000	13,93,934
Total ...	28,77,000	32,05,000	27,43,000	27,95,344

3. *Major Works, Direct receipts.*—The current year's revised estimate is less than the budget estimate for that year, chiefly owing to the irrigation revenue derived from the Kurnool-Cuddapah canal during 1889-90 having indicated that the budget estimate is rather high and that canal water is not likely to be taken for dry crops as extensively as in 1888-89. The increase of the budget estimate for next year over the current year's revised estimate is due to probable extension of irrigation under the Kurnool-Cuddapah canal.

4. *Major Works—Portion of Land Revenue due to Irrigation.*—The increase of the revised over the budget estimate for the current year is due to probable extension of irrigation in the Godávari and Kistna deltas. The increase of the budget estimate for next year over the current year's revised estimate is partly due to the above cause and partly to probable extension of irrigation under the Pennér and Sangam anicuts.

5. *Protective Works, Irrigation.*—The current year's revised estimate under this head includes the additional grant of Rs. 92,000 which was sanctioned by the Government of India in its letter No. 83 A.I., dated 11th December 1890, communicated with Proceedings of the Madras Government No. 13 I., dated 5th January 1891, owing to the Rushikulya project works having been pushed on rapidly. The revised estimates for this project have been submitted to the Secretary of State for sanction.

6. *Major Works (Working Expenses).*—(*a*) The revised estimate under this head includes Rs. 1,20,000 sanctioned by the Government of India in its letters marginally noted for writing back the value of the old lock at Vijeshweram in the Godávari Western division from "Capital" to "Revenue" Account, for carrying out certain minor improvements to the Kurnool-Cuddapah canal and special repairs to the anicuts connected with this canal and for an efficient upkeep of the works of other systems.

78 A.I., dated 4th December 1890, printed in Proceedings of the Madras Government No. 754 I., of 15th December 1890.
86 A.I., dated 19th December 1890, printed in Proceedings of the Madras Government No. 22 I., dated 9th January 1891.

(*b*) The amount of Rs. 11,52,000 (which is Rs. 61,000 less than the current year's revised estimate) assigned for expenditure under this head has been distributed as shown below :—

—	Extensions and improvements.	Maintenance and repairs.	Establishment.			Tools and plant.	Total.
			23 per cent. on expenditure.	10 per cent. on direct revenue.	6 per cent. on indirect revenue.		
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Godávari delta	* 20,000	2,15,000	53,130	10,650	1,24,560	38,660	4,62,000
Kistna delta	* 10,000	1,90,000	46,000	4,600	91,740	40,660	3,83,000
Pennér anicut	1,563	16,140	4,072	50	7,980	195	30,000
Sangam do.	9,655	38,116	10,987	100	9,660	482	69,000
Kurnool-Cuddapah canal	12,000	† 78,000	19,918	700	4,200	3,182	1,18,060
Barur tank	1,626	2,862	1,032	..	480	..	6,000
Cauvery delta	29,057	— 12,634	3,777	700	44,100	— 1,000	64,000
Srivaikuntham anicut	5,259	5,792	2,537	150	6,360	— 78	20,000
Total ..	89,140	5,33,276	1,41,453	16,950	2,89,080	82,101	11,52,000

* Inclusive of Rs. 4,000 for land compensation for which no charge for establishment need be provided.
† Inclusive of Rs. 3,398 for maintenance of telegraph line on which no charge for establishment need be provided.

(*c*) The subjoined statement shows the amounts applied for and those provided under "Extensions and Improvements," "Maintenance and Repairs" and "Tools and Plant" for each division for 1891-92 :—

Systems.	Divisions	Extensions and Improvements.		Maintenance and Repairs.		Tools and Plant.	
		Amount applied for.	Amount provided.	Amount applied for.	Amount provided.	Amount applied for.	Amount provided.
		RS.	RS.	RS.	RS.	RS.	RS.
Godávari delta ..	Eastern	12,000	6,000	75,000	75,000	35,000	34,660
	Central	15,000	6,000	50,000	50,000	..	..
	Western	25,000	8,000	90,000	90,000	4,000	4,000
	Total ..	52,000	20,000	2,15,000	2,15,000	39,000	38,660
Kistna delta ..	Eastern	5,000	4,000	75,000	75,000	40,000	38,860
	Gudiváda	4,000	3,000	35,000	35,000	300	300
	Western	3,000	3,000	80,000	80,000	1,500	1,500
	Total ..	12,000	10,000	1,90,000	1,90,000	41,800	40,660

Systems.	Divisions.	Extensions and Improvements.		Maintenance and Repairs.		Tools and Plant.	
		Amount applied for.	Amount provided.	Amount applied for.	Amount provided.	Amount applied for.	Amount provided.
		RS.	RS.	RS.	RS.	RS.	RS.
Pennér anicut ..	Nellore	5,000	5,127	30,000	30,000	200	200
	Deduct old maintenance charges	3,564	3,564	13,860	13,860	5	5
	Net total ..	1,436	1,563	16,140	16,140	195	195
Sangam anicut ..	Nellore	10,000	10,000	50,000	50,000	500	539
	Deduct old maintenance charges.	345	345	11,884	11,884	57	57
	Net total ..	9,655	9,655	38,116	38,116	443	482
Kurnool-Cuddapah canal.	Kurnool	20,000	12,000	81,400	78,000	3,000	3,182
Barur tank ..	Coimbatore	..	1,626	3,000	2,862	45	..
Cauvery delta ..	Tanjore	22,740	17,740	40,000	40,000	400	403
	Negapatam	26,000	10,817	32,000	30,000	200	200
	Trichinopoly	500	500	24,900	23,000	..	..
	Total ..	49,240	29,057	96,900	93,000	600	603
	Deduct old maintenance charges	..	..	1,05,634	1,05,634	1,603	1,603
	Net total ..	49,240	29,057	— 8,734	— 12,634	— 1,003	— 1,000
Srívaikuntham anicut.	Tinnevelly	10,000	5,591	12,000	11,000	..	..
	Deduct old maintenance charges	352	352	5,208	5,208	78	78
	Net total ..	9,648	5,239	6,792	5,792	— 78	— 78
	Grand total ..	..	89,140	..	5,33,276	..	82,101

(*d*) The amounts applied for by the Superintending Engineers concerned for the Godávari, Kistna and Cauvery deltas and the Srívaikuntham anicut systems under "Extensions and Improvements" have been reduced as they are more than those provided for in the schedule of demands printed in Proceedings of the Madras Government No. 536 I., dated 23rd September 1890, and as, owing to an increase in the estimate of the portion of land revenue due to irrigation, an additional provision has to be made to meet the percentage charge on such revenue on account of Public Works establishment.

(*e*) Of the amount provided for the Cauvery delta under "Extensions and Improvements," Rs. 9,140 are for completing the improvements to the Vennár Vadavar, Rs. 2,600 for completing the improvements to the Cauvery left bank Vaduvagudy surplus weir both in the Tanjore division, and Rs. 5,000 for improving the Vadugacheri dam across the Kaduvayar in the Negapatam division. The amounts applied for for minor "Extensions and Improvements" in the Tanjore and Negapatam divisions have been reduced from Rs. 11,000 to Rs. 6,000 and from Rs. 10,000 to Rs. 5,817, respectively.

(*f*) The grant for the Cauvery delta under "Maintenance and Repairs" is Rs. 6,000 more than the sum entered in the schedule of demands, as it did not include provision for the special repairs required to be carried out to the Penguni and Iyen channels in the Trichinopoly division.

(*g*) The amount provided for the Srívaikuntham anicut system under "Extensions and Improvements," is required for improving the Korampalam tank. The amount provided for this system under "Maintenance and Repairs" in the schedule of demands has been increased by Rs. 1,000 to admit of the repairs sanctioned to the Arumangulam tank being carried out.

(*h*) The Superintending Engineer, IV Circle, has applied for Rs. 3,960 for expenditure this year on the Barur tank project under "Extensions and Improvements" for providing two regulators to the supply channel of the Barur tank and for

ramps on either side of the outlets on the channel and for demarcating the lands taken up for the project. As it is improbable that the demand can be fully met this year, a sum of Rs. 1,626 has been provided for expenditure next year.

7. *Major Works (Construction).*—(*a*) The revised estimate is $2\frac{1}{2}$ lakhs more than the current year's budget estimate, the increase having been sanctioned by the Government of India in its telegrams, dated 27th November 1890 and 22nd January 1891, communicated with Proceedings of the Madras Government Nos. 698 I. and 70 A.I., dated 1st December 1890 and 24th January 1891, respectively, to admit of a vigorous prosecution of the Periyár project works.

(*b*) The budget estimate of Rs. 13,75,000 for next year is Rs. 1,75,000 less than the current year's revised estimate, and is distributed as shown below:—

—	Land.	Works.	Establishment.	Tools and plant.	Total.
	RS.	RS.	RS.	RS.	RS.
Godavári— Eastern division	..	51,000	11,730	270	63,000
Kistna—					
Eastern division	8,478	1,25,000	28,750	16,000	1,78,228
Gudiváda do.	5,000	80,000	18,400	..	1,03,400
Western do.	5,000	1,55,000	35,650	3,322	1,98,972
Total ..	18,478	3,60,000	82,800	19,322	4,80,600
Pennér— Nellore division	..	8,130	1,870	..	10,000
Sangam— Nellore division	7,400	20,000	4,600	..	32,000
Barur tank— Coimbatore division	..	1,940	446	14	2,400
Periyár project—					
No. 1 division	..	2,63,000	60,490	30,510	3,54,000
No. 2 do.	13,298	3,37,156	77,540	5,000	4,33,000
Total ..	13,298	6,00,156	1,38,036	35,510	7,87,000
Grand Total ..	39,176	10,41,226	2,39,482	55,116	13,75,000

(*c*) The grant provided for the Godávari delta is for completing the reconstruction of the lock at Vijeshweram in the Western division included in the open capital sanction accorded by the Government of India in its letter No. 5 I., dated 12th January 1891, the construction estimate of the delta having been closed on 31st March last.

(*d*) The Superintending Engineer, II Circle, has applied for Rs. 5,65,349 for the Kistna delta, but no more than Rs. 4,80,600 could be provided for, as the Government of India reduced the total demand under this head.

(*e*) The construction estimates for the Pennér anicut and Barur tank will be closed on 31st March next. The amount provided for the Pennér anicut system is required for completing the improvements to the Nellore tank supply channel, the only work which will remain to be carried out. The amount provided for the Barur tank is required for giving a new head to Agaram channel, the only work which will not be completed this year. With reference to G.O., No. 592 I., dated 17th October 1890, the Superintending Engineer, II Circle, should expedite the submission of the completion report and schedule of works of the Pennér anicut system which may remain to be carried out on 1st April next, and the Superintending Engineer, IV Circle, should submit similar information for the Barur tank project.

(*f*) The Superintending Engineer, II Circle, should see that the Sangam anicut project works are completed as soon as possible.

(*g*) The Government of India has, in its letter No. 116 I., dated 9th July 1890, printed in Proceedings of the Madras Government No. 407 I., dated 25th July 1890, extended the sanction to the Periyár project to the end of September 1894.

(*h*) The following statement compares the probable direct capital outlay to the end of 1891-92 with the sanctioned estimates:—

——	Sanctioned estimate.	Outlay to end of 1889-90.	Revised estimate for 1890-91.	Budget estimate for 1891-92.	Total.	Balance of estimate.	Remarks.
	RS.	RS.	RS.	RS.	RS.	RS.	
Godávari delta ..	98,000	..	37,378	63,000	1,00,378	..	Open capital sanction construction estimate was closed on 31st March 1890.
Kistna do. ..	1,39,19,784	88,37,758	4,32,718	4,80,600	97,51,076	41,68,708	
Pennér anicut ..	16,50,290	16,23,663	9,880	10,000	16,43,543	6,747	
Sangam do. ..	30,65,000	29,60,881	23,402	32,000	30,16,283	48,717	
Barur tank	4,00,000	3,78,466	14,622	2,400	3,95,488	4,512	
Periyár project ..	54,25,000	16,05,932	10,32,000	7,87,000	34,24,932	20,00,068	
Total ..	2,45,58,074	1,54,06,700	15,50,000	13,75,000	1,83,31,700	62,28,752	

(*i*) The following statement shows the estimated financial results of the works to the end of 1891-92:—

Systems.	Capital Outlay to end of 1891-92.			Net Revenue.				Interest charges to end of 1891-92.	Surplus revenue to end of 1891-92.
	Direct.	Indirect.	Total.	To end of 1889-90.	Revised estimate for 1890-91.	Budget estimate for 1891-92.	Total.		
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Godávari delta ..	1,09,33,440	18,89,042	1,28,22,482	3,33,67,421	16,09,977	17,42,332	3,67,19,730	1,08,52,547	2,58,67,183
Kistna do. ..	97,51,076	7,50,301	1,05,01,377	1,68,10.121	12,29,925	12,71,372	1,93,11,418	69,86,532	1,23,24,886
Pennér anicut ..	16,43,543	2,43,970	18,87,513	20,84,182	1,14,446	1,11,306	23,09,934	14,99,262	8,10,672
Sangam do ..	30,16,283	6,84,485	37,00,768	2,12,250	84,495	93,445	3,90,190	9,09,137	— 5,18,947
Kurnool-Cuddapah canal ..	2,16,41,679	..	2,16,41,679	— 7,39,438	— 82,393	— 47,974	— 8,69,805	82,28,652	--90,98,457
Barur tank ..	3,95,488	21,627	4,17,115	— 860	— 1,212	1,388	— 684	96,003	— 96,687
Cauvery delta ..	16,56,061	1,23,392	17,79,453	1,83,80,906	6,66,195	8,26,349	1,98,73,450	15,36,492	1,83,36,958
Srívaikuntham anicut ..	13,51,027	1,00,514	14,51,541	9,38,288	69,467	82,834	10,90,589	10,29,950	60,639
Periyár project ..	34,24,932	2,02,674	36,27,606	..	..	..	..	2,83,649	— 2,83,649
Total ..	5,38,13,529	40,16,005	5,78,29,534	7,10,52,870	36,90,900	40,81,052	7,88,24,822	3,14,22,224	4,74,02,598

8. *General.*—(*a*) The total provision for contribution from "Imperial" Major Works to "Provincial—45. Civil Works" on account of establishment charges for 1891-92 compares with that for 1890-91 as shown below:—

	1891-92.	1890-91.
	RS.	RS.
Total grant for works and repairs	19,84,119	22,57,019
Establishment.		
23 per cent. on expenditure	4,45,634	4,91,169
10 per cent. on Direct Revenue	16,950	17,025
6 per cent. on Indirect Revenue	2,89,080	2,72,880
Special establishment	...	5,000
Total ...	7,51,664	7,86,074
Percentage of the establishment charges on the grant for works and repairs	37·9	34·8

(*b*) Superintending Engineers should, as instructed in this office circular No. 17 G., dated 15th November 1886, submit schedule showing the distribution by component works of the grants provided for expenditure during the ensuing official year so as to reach this office on or before the 1st March next to admit of the compilation of the final issue of the budget estimates being completed within the due date.

Order—dated 5th February 1891, No. 103 I., Public Works.

The budget estimates for Major Works for 1891-92, embodying the revised estimates for 1890-91, as drawn up by the Chief Engineer for Irrigation, are approved and will be submitted to the Government of India.

2. Ordered that the following letter be sent to the Government of India.

(Here enter No. 104 I., dated 5th February 1891.)

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
To all Superintending Engineers.
To the Superintendent of Works, No. I Periyár division.
" Examiner, Public Works Accounts.
" Revenue Department.
" Financial Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 5th.

Recd. *Encl.*

G.O., 5th Feb. 1891, No. 103 I.

FEBRUARY.

Budget Estimates

The — for Major Works for 1891-92, approved and ordered to be forwarded to the Government of India.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

LETTER—from

G. T. WALCH, ESQ.,
Joint Secretary to Government,
Public Works Department,
Irrigation Branch,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
PUBLIC WORKS DEPARTMENT.

SIR,

In forwarding a copy of Proceedings of the Madras Government, No. 103 I., dated 5th February 1891, together with the preliminary issue of the budget estimates for Major Works for 1891-92, I am directed to request that the approval of the Government of India thereto may be communicated at an early date.

I have the honor to be,
Sir,
Your most obedient servant,

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

FORT ST. GEORGE,
5th February 1891.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 5th.

Recd. *Encl.*

5th Feb. 1891, No. 104 I.

FEBRUARY.

Budget Estimates

Forwarding for approval the — for Major Works for 1891-92.

PRELIMINARY ISSUE.

IRRIGATION—MAJOR WORKS. MADRAS PRESIDENCY.

PUBLIC WORKS DEPARTMENT.

BUDGET ESTIMATE

OF

IRRIGATION—MAJOR WORKS—PROTECTIVE AND PRODUCTIVE,

IN THE

MADRAS PRESIDENCY,

FOR THE YEAR

1891-92.

5th February 1891.

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

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REVENUE.

BUDGET ESTIMATE OF REVENUE FROM IRRIGATION—MAJOR WORKS IN THE MADRAS PRESIDENCY FOR THE YEAR FROM 1ST APRIL 1891 TO 31ST MARCH 1892.

	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.	Budget Estimate, 1890-91.	Actual Realizations, 1889-90.
	Rs.	Rs.	Rs.	Rs.
IRRIGATION.				
XXIX.—MAJOR WORKS—(DIRECT RECEIPTS).				
Imperial.				
Godávari Delta System	1,06,500	1,06,500	1,06,500	1,14,918
Kistna Delta System	46,000	46,000	46,000	45,020
Pennér Anicut System	500	400	400	508
Sangam Anicut System	1,000	1,600	1,600	914
Barúr Tank Project	...	...	...	101
Cauvery Delta System	7,000	7,250	7,000	7,362
Srívaikuntham Anicut System	1,500	1,500	1,500	1,152
Kurnool-Cuddapah Canal. — Collections in the Revenue Department ...	70,000	65,000	80,000	67,114
Kurnool-Cuddapah Canal. — *Deduct* Collection Charges	3,500	3,250	4,000	3,356
Kurnool-Cuddapah Canal. — Net Collections in the Revenue Department ...	66,500	61,750	76,000	63,758
Kurnool-Cuddapah Canal. — Collections in the Public Works Department...	7,000	7,000	8,000	12,193
Total ...	73,500	68,750	84,000	75,951
TOTAL ...	2,36,000	2,32,000	2,47,000	2,45,926

REVENUE.

MEMORANDUM OF THE AMOUNTS TO BE CREDITED TO EACH PROJECT ON ACCOUNT OF IRRIGATION REVENUE AND SHARE OF ENHANCED LAND REVENUE DUE TO THE WORKS, EXCLUDING COLLECTION CHARGES IN THE REVENUE DEPARTMENT.

	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.	Budget Estimate, 1890-91.	Actual Realizations, 1889-90.
Irrigation—continued.	Rs.	Rs.	Rs.	Rs.
XXIX.—PORTION OF LAND REVENUE DUE TO IRRIGATION.				
Godávari Delta—				
Irrigation Revenue	22,00,000	21,50,000	21,10,000	20,77,555
Deduct Revenue due to old Irrigation	1,24,000	1,24,000	1,23,000	1,24,000
Revenue due to the System	20,76,000	20,26,000	19,87,000	19,53,555
Share of enhanced Land Revenue	1,60,000	1,55,000	1,50,000	1,55,620
Total ...	22,36,000	21,81,000	21,37,000	21,09,175
Deduct Collection Charges in the Civil Department	1,11,800	1,09,050	1,06,850	1,05,459
Net Revenue ...	21,24,200	20,71,950	20,30,150	20,03,716
Kistna Delta—				
Irrigation Revenue	16,00,000	15,50,000	15,00,000	14,90,588
Deduct Revenue due to old Irrigation	71,000	71,000	71,000	71,000
Revenue due to the System	15,29,000	14,79,000	14,29,000	14,19,588
Share of enhanced Land Revenue	1,85,000	1,75,000	1,58,000	1,65,863
Total ...	17,14,000	16,54,000	15,87,000	15,85,451
Deduct Collection Charges in the Civil Department	85,700	82,700	79,350	79,273
Net Revenue ...	16,28,300	15,71,300	15,07,650	15,06,178
Pennér Anicut—				
Irrigation Revenue	2,50,000	2,48,000	2,40,000	2,46,732
Deduct Revenue due to old Irrigation	1,17,000	1,17,000	1,16,000	1,17,000
Revenue due to the System	1,33,000	1,31,000	1,24,000	1,29,732
Share of enhanced Land Revenue	17,000	17,000	16,000	17,149
Total ...	1,50,000	1,48,000	1,40,000	1,46,881
Deduct Collection Charges in the Civil Department	7,500	7,400	7,000	7,344
Net Revenue ...	1,42,500	1,40,600	1,33,000	1,39,537
Sangam Anicut—				
Irrigation Revenue	3,00,000	2,75,000	2,75,000	...
Deduct Revenue due to old Irrigation	1,39,000	1,39,000	1,30,000	...
Revenue due to the System	1,61,000	1,36,000	1,45,000	1,19,391
Share of enhanced Land Revenue	12,000	10,000	5,000	6,930
Total ...	1,73,000	1,46,000	1,50,000	1,26,321
Deduct Collection Charges in the Civil Department	8,650	7,300	7,500	6,316
Net Revenue ...	1,64,350	1,38,700	1,42,500	1,20,005

REVENUE.

MEMORANDUM OF THE AMOUNTS TO BE CREDITED TO EACH PROJECT ON ACCOUNT OF IRRIGATION REVENUE AND SHARE OF ENHANCED LAND REVENUE DUE TO THE WORKS, EXCLUDING COLLECTION CHARGES IN THE REVENUE DEPARTMENT—continued.

	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.	Budget Estimate, 1890-91.	Actual Realizations, 1889-90.
	Rs.	Rs.	Rs.	Rs.
IRRIGATION—continued.				
XXIX.—PORTION OF LAND REVENUE DUE TO IRRIGATION—continued.				
Cauvery Delta—				
Irrigation Revenue	31,00,000	29,70,000	29,70,000	...
Deduct Revenue due to old Irrigation	23,65,000	23,65,000	23,65,000	...
Revenue due to the System	7,35,000	6,05,000	6,05,000	6,64,434
Share of enhanced Land Revenue	2,02,000	1,42,000	1,40,000	1,49,932
Total ...	9,37,000	7,47,000	7,45,000	8,14,366
Deduct Collection Charges in the Civil Department	46,850	37,350	37,250	40,718
Net Revenue ...	8,90,150	7,09,650	7,07,750	7,73,648
Srívaikuntham Anicut—				
Irrigation Revenue	1,85,000	1,82,000	1,90,000	1,80,572
Deduct Revenue due to old Irrigation	79,000	79,000	79,000	79,000
Revenue due to the System	1,06,000	1,03,000	1,11,000	1,01,572
Share of enhanced Land Revenue	2,000	2,000	2,000	1,838
Total ...	1,08,000	1,05,000	1,13,000	1,03,410
Deduct Collection Charges in the Civil Department	5,400	5,250	5,650	5,170
Net Revenue ...	1,02,600	99,750	1,07,350	98,240
Barúr Tank—				
Irrigation Revenue	10,000	5,000	10,000	4,558
Deduct Revenue due to old Irrigation	2,000	2,000	6,000	2,000
Revenue due to the System	8,000	3,000	4,000	2,558
Share of enhanced Land Revenue	...	...	...	4
Total ...	8,000	3,000	4,000	2,562
Deduct Collection Charges in the Civil Department	400	150	200	128
Net Revenue ...	7,600	2,850	3,800	2,434
Total—				
Irrigation Revenue	76,45,000	73,80,000	72,75,000	...
Deduct Revenue due to old Irrigation	28,97,000	28,97,000	28,90,000	...
Revenue due to the System	47,48,000	44,83,000	44,05,000	43,90,830
Share of enhanced Land Revenue	5,78,000	5,01,000	4,71,000	4,97,336
Total ...	53,26,000	49,84,000	48,76,000	48,88,166
Deduct Collection Charges in the Civil Department	2,66,300	2,49,200	2,43,800	2,44,408
Net Revenue ...	50,59,700	47,34,800	46,32,200	46,43,758

CHARGES.

ABSTRACT BUDGET ESTIMATE OF CHARGES FOR IRRIGATION—MAJOR WORKS IN THE MADRAS PRESIDENCY FOR THE YEAR FROM 1ST APRIL 1891 TO 31ST MARCH 1892.

		Reference to Detailed Estimate.	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.	Budget Estimate, 1890-91.	Actual Outlay, 1889-90.
		Pages.	Rs.	Rs.	Rs.	Rs.
Famine Relief and Insurance.						
35. Construction of protective irrigation works.						
I.—Works ... ... { In progress ...	Rs. 2,81,301					
Not commenced	...	...	2,81,301	3,58,556	2,89,211	2,50,394
II.—Establishment		...	64,699	79,644	54,789	55,964
III.—Tools and Plant		...	4,000	3,800	6,000	8,742
Receipts on Capital Account		...	...	...	...	— 885
Total Protective Works ...		...	3,50,000	4,42,000	3,50,000	3,14,215
Irrigation.						
42. Major works—(working expenses).						
I.—Extensions and Improvements. { In progress ...	Rs. 16,979					
Not commenced	72,161	...	89,140	1,60,256	91,336	1,02,790
II.—Maintenance and Repairs		...	5,33,276	5,19,981	5,01,577	4,80,110
III.—Establishment		...	4,47,483	4,49,288	4,27,189	4,27,265
IV.—Tools and Plant		...	82,101	83,475	72,898	76,432
Refunds of Revenue		...	...	...	...	598
Total Working Expenses ...		...	11,52,000	12,13,000	10,93,000	10,87,195
Capital Expenditure not charged to Revenue.						
49. Irrigation.						
I.—Works ... { In progress ...	Rs. 10,80,402					
Not commenced	...	...	10,80,402	12,18,226	10,35,011	10,88,010
II.—Establishment		...	2,39,482	2,57,142	2,25,317	2,39,080
III.—Tools and Plant		...	55,116	74,632	39,672	69,391
IV.—Suspense Account		...	...	...	...	— 70
V.—Receipts on Capital Account		...	...	...	...	— 2,477
Total Capital Expenditure ..		...	13,75,000	15,50,000	13,00,000	13,93,934

CHARGES.

PART I.

BUDGET ESTIMATE OF EXPENDITURE ON IRRIGATION—MAJOR WORKS IN THE MADRAS PRESIDENCY FOR THE YEAR 1890-91, ARRANGED BY PROJECTS AND OBJECTS OF WORK.

	Amount of Sanctioned Estimate.	Actual Outlay to end of 1889-90.	Budget Estimate, 1890-91.	Probable Outlay during 1890-91 (Revised Estimate).	Budget Estimate, 1891-92.	Remarks and References.
	Rs.	Rs.	Rs.	Rs.	Rs.	
Famine Relief and Insurance.						
35. CONSTRUCTION OF PROTECTIVE IRRIGATION WORKS.						
Capital Account.						
Rushikulya Project	* 26,05,286	13,79,700	3,50,000	4,42,000	3,50,000	Government of India Register No. 16 I. of 1882-83. Proceedings of Madras Govt., No. 147 I. of 13th Feb. 1883. Revised estimate amounting to Rupees 43,16,000 including indirect charges forwarded for the sanction of the Secretary of State—*vide* Government of India letter No. 4 I. of 12th January 1891; Proceedings of Madras Government, No. 68 I. of 22nd January 1891.
Total ...	26,05,286	13,79,700	3,50,000	4,42,000	3,50,000	
Irrigation.						
42. MAJOR WORKS—(WORKING EXPENSES).						
Godávari Delta	...	...	4,98,000	5,40,055	4,62,000	
Kistna do.	...	...	3,43,000	3,68,000	3,83,000	
Pennér Anicut	...	...	17,000	25,000	30,000	
Sangam do.	...	...	54,000	53,460	69,000	
Kurnool-Cuddapah Canal ...	...	...	1,10,000	1,17,000	1,18,000	
Barúr Project	...	...	4,000	3,940	6,000	
Cauvery Delta	...	...	46,000	45,277	64,000	
Srívaikuntham Anicut ...	...	...	21,000	30,268	20,000	
Total ...	...	...	10,93,000	12,13,000	11,52,000	
Capital Expenditure not charged to Revenue.						
49. IRRIGATION.						
Works in Progress.						
Godávari Delta System ...	98,000	...	42,000	37,378	63,000	Proceedings of Madras Government, No. 428 I. of 11th August 1890; Proceedings of Madras Government, No. 544/A, of 26th September 1890; and Government of India letter No. 174 I. of 9th September 1890. Proceedings of Madras Government, No. 664 I. of 17th November 1890. Government of India letter No. 5 I. of 12th January 1891.
Kistna Delta System ...	1,39,19,784	88,37,758	4,28,000	4,32,718	4,80,600	Government of India Register No. 8 I. of 1884-85. Proceedings of Madras Govt., No. 862 I. of 22nd September 1884. Government of India letter No. 10 I. of 22nd January 1889. Proceedings of Madras Government, No. 62 I. of 11th February 1889.
Pennér Anicut do. ...	16,50,289	16,23,663	6,000	9,880	10,000	Government of India Register No. 1 I. of 1890-91. Proceedings of Madras Govt., No. 11 I. of 5th Jan. 1891.
Sangam Anicut do. ...	30,65,000	29,60,881	32,000	23,402	32,000	Government of India Register No. 4 I. of 1881-82. Proceedings of Madras Govt., No. 352 I. of 2nd June 1881. Govt. of India Register No. 1 I. of 1889-90. Proceedings of Madras Government, No. 284 I. of 12th June 1889.
Barúr Tank	4,00,000	3,78,466	10,000	14,622	2,400	Government of India Register No. 11 I. of 1885-86. Proceedings of Madras Govt., No. 289 I. of 30th March 1886.
Periyár Project	54,25,000	16,05,932	7,82,000	10,52,000	7,87,000	Revised sanction applied for—*vide* Proceedings of Madras Govt., No. 100 I., dated 17th February 1890. Govt. of India Register No. 1 I. of 1886-87. Proceedings of Madras Govt., No. 386 I. of 29th May 1886, and No. 554 I. of 8th June 1887.
Total ...	...	...	13,00,000	15,50,000	13,75,000	

* These figures include "Loss by Exchange."

CHARGES.

PART I—continued.

ABSTRACT OF CHARGES TO BE INCURRED FROM IMPERIAL AND PROVINCIAL FUNDS AND CONTRIBUTIONS.

	Budget Estimate, 1891-92.								Revised Estimate, 1890-91.	Budget Estimate, 1890-91.	Actual Outlay, 1889-90.
	Works.			Repairs.	Establishment.	Tools and Plant.	Receipts on Capital Account.	Total.			
	In progress.	Not commenced.	Total.								
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Famine Relief and Insurance.											
35. CONSTRUCTION OF PROTECTIVE IRRIGATION WORKS.											
In India	2,81,301	...	2,81,301	...	64,699	4,000	...	3,50,000	4,42,000	3,50,000	3,14,215
In England	...	...	...	...	...	..	...	...	...	...	...
Total ...	2,81,301	...	2,81,301	..	64,699	4,000	...	3,50,000	4,42,000	3,50,000	3,14,215
Irrigation.											
42. MAJOR WORKS—(WORKING EXPENSES).											
In India	16,979	72,161	89,140	5,33,276	4,47,483	82,101	...	11,52,000	12,13,000	10,93,000	10,87,195
In England	...	...	...	...	...	...	...	...	...	...	...
Total ...	16,979	72,161	89,140	5,33,276	4,47,483	82,101	...	11,52,000	12,13,000	10,93,000	10,87,195
Capital Expenditure not charged to Revenue.											
49. IRRIGATION.											
In India	10,80,402	...	10,80,402	...	2,39,482	55,116	...	13,75,000	15,50,000	13,00,000	13,93,934
In England	...	...	...	...	...	...	...	...	...	...	...
Total ...	10,80,402	...	10,80,402	...	2,39,482	55,116	...	13,75,000	15,50,000	13,00,000	13,93,934
GRAND TOTAL ...	13,78,682	72,161	14,50,843	5,33,276	7,51,664	1,41,217	...	28,77,000	32,05,000	27,43,000	27,95,344
Provincial and Local.											
Nil.											

BUDGET ESTIMATE OF EXPENDITURE IN ENGLAND ON IRRIGATION—MAJOR WORKS IN THE MADRAS PRESIDENCY FOR THE YEAR 1891-92, ARRANGED BY PROJECTS AND OBJECTS OF WORK.—*Nil.*

CHARGES.

PART IV.

DETAIL OF THE BUDGET ESTIMATE FOR ESTABLISHMENT CHARGES FOR THE YEAR 1891-92.

	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.
	Rs.	Rs.
IMPERIAL.		
FAMINE RELIEF AND INSURANCE.		
35. Construction of Protective Irrigation Works.		
Grant for Works	2,81,301	3,58,556
Deduct item for which no charge for Establishment is admissible.		
Compensation for land	...	12,280
Net Grant ...	2,81,301	3,46,276
Contribution to Provincial Funds at 23 per cent. on the Net Grant ...	64,699	79,644
IRRIGATION.		
42. Major Works (Working Expenses).		
Grant for Works and Repairs	6,22,416	6,80,237
Deduct items for which no charge for Establishment is admissible.		
Compensation for land, Godávari Delta System	4,000	9,000
Payment to the Telegraph Department for maintenance and supervision of Kurnool-Cuddapah Canal telegraph line	3,398	...
Total ...	7,398	9,000
Net Grant ...	6,15,018	6,71,237
A. 23 per cent. on the Net Grant	1,41,453	1,54,383
Direct Revenue	2,36,000	2,32,000
Deduct estimated collections in the Revenue Department of water-rates levied on lands irrigated under the Kurnool-Cuddapah Canal	66,500	61,750
Net Direct Revenue ...	1,69,500	1,70,250
B. 10 per cent. on Net Direct Revenue	16,950	17,025
Irrigation Revenue exclusive of enhanced share of Land Revenue	47,48,000	44,83,000
Add estimated collections in the Revenue Department of water-rates levied on land irrigated under the Kurnool-Cuddapah Canal	70,000	65,000
Total ...	48,18,000	45,48,000
C. 6 per cent. on Irrigation Revenue	2,89,080	2,72,880

CHARGES.

PART IV—continued.

DETAIL OF THE BUDGET ESTIMATE FOR ESTABLISHMENT CHARGES FOR THE YEAR 1891-92—continued.

——	Rate of Salary.	Amount per mensem.	Amount per annum.	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.
	Rs.	Rs.	Rs.	Rs.	Rs.
D. *Establishment of Government Workshops at Dowlaishweram*	...	...	...	...	5,000
Total A + B + C + D ...	...	...	...	4,47,483	4,49,288
CAPITAL EXPENDITURE NOT CHARGED TO REVENUE.					
49. Irrigation.					
Total Grant for Works	...	...	...	10,80,402	12,18,226
Deduct item for which no charge for Establishment is admissible.					
Land Compensation	...	...	...	39,176	1,00,219
Net Grant ...	...	...	...	10,41,226	11,18,007
Contribution to Provincial Funds at 23 per cent. on Net Grant ...	...	...	...	2,39,482	2,57,142

PART VII.

DETAIL OF ESTIMATE OF SUSPENSE BALANCES.

Nil.

All Suspense Accounts are included under Provincial, Civil Buildings, Roads and Services.

APPENDIX A.

ACTUAL AND ESTIMATED CAPITAL ACCOUNT OF IRRIGATION—MAJOR WORKS IN THE MADRAS PRESIDENCY TO END OF THE YEAR 1891-92.

—	Direct Charges.			Indirect Charges.			GRAND TOTAL.
	Capital Expenditure not charged to Revenue.	Capital Expenditure charged to Revenue.	Total.	Capitalization of abatement of Land Revenue.	Leave and Pension Allowances.	Total.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Protective Works.							
Rushikulya Project.							
Total actual outlay to end of 1889-90...	...	13,79,700	13,79,700	1,87,594	28,476	2,16,070	15,95,770
Probable outlay during 1890-91 ...	...	4,42,000	4,42,000	15,350	11,150	26,500	4,68,500
Proposed outlay during 1891-92 ...	...	3,50,000	3,50,000	...	9,057	9,057	3,59,057
Total ...	...	21,71,700	21,71,700	2,02,944	48,683	2,51,627	24,23,327
Productive Public Works.							
Godavari Delta System.							
Total actual outlay to end of 1889-90 ...	1,08,33,062	...	1,08,33,062	14,93,582	3,92,601	18,86,183	1,27,19,245
Probable outlay during 1890-91 ...	37,378	...	37,378	625	592	1,217	38,595
Proposed outlay during 1891-92 ...	63,000	...	63,000	...	1,642	1,642	64,642
Total ...	1,09,33,440	...	1,09,33,440	14,94,207	3,94,835	18,89,042	1,28,22,482
Kistna Delta System.							
Total actual outlay to end of 1889-90...	88,37,758	...	88,37,758	3,53,058	3,06,026	6,59,084	94,96,842
Probable outlay during 1890-91 ...	4,32,718	...	4,32,718	33,540	10,488	44,028	4,76,746
Proposed outlay during 1891-92 ...	4,80,600	...	4,80,600	35,597	11,592	47,189	5,27,789
Total ...	97,51,076	...	97,51,076	4,22,195	3,28,106	7,50,301	1,05,01,377
Penner Anicut System.							
Total actual outlay to end of 1889-90...	16,23,663	...	16,23,663	1,78,807	64,471	2,43,278	18,66,941
Probable outlay during 1890-91 ...	9,880	...	9,880	175	255	430	10,310
Proposed outlay during 1891-92 ...	10,000	...	10,000	...	262	262	10,262
Total ...	16,43,543	...	16,43,543	1,78,982	64,988	2,43,970	18,87,513
Sangam Anicut System.							
Total actual outlay to end of 1889-90 ..	29,60,881	...	29,60,881	5,92,327	67,698	6,60,025	36,20,906
Probable outlay during 1890-91 ...	23,402	...	23,402	14,252	314	14,566	37,968
Proposed outlay during 1891-92 ...	32,000	...	32,000	9,250	644	9,894	41,894
Total ...	30,16,283	...	30,16,283	6,15,829	68,656	6,84,485	37,00,768
Barur Tank Project.							
Total actual outlay to end of 1889-90 ...	3,78,466	...	3,78,466	10,338	9,751	20,089	3,98,555
Probable outlay during 1890-91 ...	14,622	...	14,622	1,120	356	1,476	16,098
Proposed outlay during 1891-92 ...	2,400	...	2,400	...	62	62	2,462
Total ...	3,95,488	...	3,95,488	11,458	10,169	21,627	4,17,115
Cauvery Delta System.							
Total actual outlay to end of 1889-90 ...	16,56,061	...	16,56,061	66,184	57,208	1,23,392	17,79,453
Probable outlay during 1890-91 ...	...	...	...	...	...	...	...
Proposed outlay during 1891-92 ...	...	...	...	...	...	...	...
Total ...	16,56,061	...	16,56,061	66,184	57,208	1,23,392	17,79,453
Srivaikuntham Anicut System.							
Total actual outlay to end of 1889-90...	13,51,027	...	13,51,027	40,254	60,260	1,00,514	14,51,541
Probable outlay during 1890-91 ...	...	...	...	...	...	...	...
Proposed outlay during 1891-92 ...	...	...	...	...	...	...	...
Total ...	13,51,027	...	13,51,027	40,254	60,260	1,00,514	14,51,541

APPENDIX A—continued.

ACTUAL AND ESTIMATED CAPITAL ACCOUNT OF IRRIGATION MAJOR WORKS IN THE MADRAS PRESIDENCY TO END OF THE YEAR 1891-92—continued.

—	Direct Charges.			Indirect Charges.			GRAND TOTAL.
	Capital Expenditure not charged against Revenue.	Capital Expenditure charged against Revenue.	Total.	Capitalization of abatement of Land Revenue.	Leave and Pension Allowances.	Total.	
Productive Public Works—cont.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Kurnool-Cuddapah Canal.							
Total actual outlay to end of 1889-90 ...	2,16,41,679	...	2,16,41,679	...	...	...	2,16,41,679
Probable outlay during 1890-91	...	...	...	...	...	...	...
Proposed outlay during 1891-92	...	...	...	...	...	...	...
Total ...	2,16,41,679	...	2,16,41,679	...	...	...	2,16,41,679
Periyar Project.							
Total actual outlay to end of 1889-90 ...	16,05,932	...	16,05,932	3,382	30,442	33,824	16,39,756
Probable outlay during 1890-91	10,32,000	...	10,32,000	75,561	23,994	99,555	11,31,555
Proposed outlay during 1891-92	7,87,000	...	7,87,000	49,970	19,325	69,295	8,56,295
Total ...	34,24,932	...	34,24,932	1,28,913	73,761	2,02,674	36,27,606

APPENDIX B.

ACTUAL AND ESTIMATED REVENUE ACCOUNT OF IRRIGATION MAJOR WORKS IN THE MADRAS PRESIDENCY TO END OF 1891-92.

—	Probable Receipts, 1891-92.			Probable Expenses during 1891-92 (including Indirect Charges).	Balance, Surplus or Deficit, 1891-92.	Probable Net Surplus or Deficit, 1890-91.	Actual Net Surplus or Deficit to end of 1889-90.	Probable Net Surplus or Deficit to end of 1891-92.
	Direct Receipts.	Irrigation Revenue inclusive of share of enhanced Land Revenue.	Total.					
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Godávari Delta System	1,06,500	21,24,200	22,30,700	4,88,368	17,42,332	16,09,977	3,33,67,421	3,67,19,730
Kistna Delta System	46,000	16,28,300	16,74,300	4,02,928	12,71,372	12,29,925	1,68,10,121	1,93,11,418
Pennér Aniout System	500	1,42,500	1,43,000	31,694	1,11,306	1,14,446	20,84,182	23,09,934
Sangam Aniout System	1,000	1,64,350	1,65,350	71,905	93,445	84,495	2,12,250	3,90,190
Barúr Project ...	...	7,600	7,600	6,212	1,388	— 1,212	— 860	— 684
Cauvery Delta System	7,000	8,90,150	8,97,150	70,801	8,26,349	6,66,195	1,83,80,906	1,98,73,450
Srívaikuntham Aniout System ...	1,500	1,02,600	1,04,100	21,266	82,834	69,467	9,38,288	10,90,589
Kurnool-Cuddapah Canal ...	73,500	...	73,500	1,21,474	— 47,974	— 82,393	— 7,39,438	— 8,69,805
Total ..	2,36,000	50,59,700	52,95,700	12,14,648	40,81,052	36,90,900	7,10,52,870	7,88,24,822

APPENDIX C.

ACTUAL AND ESTIMATED INTEREST ACCOUNT OF IRRIGATION MAJOR WORKS IN THE MADRAS PRESIDENCY TO END OF 1891-92.

—	Actual Charges for Interest to end of 1889-90.	Probable Charges for Interest for 1890-91.	Probable Charges for Interest for 1891-92.	Total to end of 1891-92.	Net Surplus or Deficit from Appendix B.	Probable net surplus or deficit after paying Interest Charges to end of 1891-92.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Protective Works.						
Rushikulya Project	1,44,000	64,028	79,868	1,43,896	...	— 1,43,896
Productive Works.						
Godávari Delta System ...	99,82,397	4,34,071	4,36,079	1,08,52,547	3,67,19,730	2,58,67,183
Kistna Delta System	62,43,938	3,62,164	3,80,430	69,86,532	1,93,11,418	1,23,24,886
Pennér Anicut System ...	13,68,574	65,145	65,543	14,99,262	23,09,934	8,10,672
Sangam Anicut System ...	6,70,223	1,18,903	1,20,011	9,09,137	3,90,190	— 5,18,947
Cauvery Delta System ...	14,04,008	66,242	66,242	15,36,492	1,98,73,450	1,83,36,958
Srivaikuntham Anicut System...	9,21,868	54,041	54,041	10,29,950	10,90,589	60,639
Kurnool-Cuddapah Canal ...	64,97,318	8,65,667	8,65,667	82,28,652	— 8,69,805	—90,98,457
Barúr Tank Project	64,801	15,431	15,771	96,003	— 684	— 96,687
Periyár Project	77,515	84,877	1,21,257	2,83,649	...	— 2,83,649
Total ...	2,72,30,642	20,66,541	21,25,041	3,14,22,224	7,88,24,822	4,74,02,598

APPENDIX D.

NT OF RECEIPTS AND CHARGES OF THE IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, IN THE MADRAS PRESIDENCY, FOR THE YEARS 1890-

RECEIPTS.

ACCOUNTS.	Budget Estimate, 1891-92.	Revised Estimate, 1890-91.
	Rs.	Rs.
NT OF YEAR	...	...
IC WORKS DEPARTMENT—		
Branch	66,02,000	68,98,000
UE—		
ts from Minor Works and Navigation	1,25,000	1,25,000
pts from Major Works	2,36,000	2,32,000
GRAND TOTAL ...	69,63,000	72,55,000

CHARGES.

ACCOUNTS.	Budget Es 1891-
	Rs
By Transfers of the Public Works Department—	
Buildings and Roads Branch	3,61
By Provincial Fund Expenditure—	
43. Minor Works and Navigation	37,00
By Expenditure from Local—Irrigation Cess—Fund—	
43. Minor Works and Navigation	25
By Imperial Fund Expenditure—	
35. Famine Relief and Insurance—Construction of Protective Irrigation Works	3,50
42. Major Works (Working Expenses)	11,52
49. Major Works (Construction)	13,75
By Balance at end of year	...
GRAND TOTAL ...	69,66

(Signed) C. H. P. CHRIS
Examiner of

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 18th January 1891, No. 1266 T.C.

I have the honor to request that the following modification of allotments may be sanctioned at an early date :—

Item number.	—	Existing grant.	Modification of allotment applied for.		Modification of allotment proposed.	
			Reduction.	Increase.	Reduction.	Increase.
	43. MINOR WORKS AND NAVIGATION.	RS.	RS.	RS.	RS.	RS.
	WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.					
	Repairs.					
1	Madura division (lump sum)	10,000	..	2,000	..	2,000
2	Trichinopoly division (lump sum)	15,000	..	5,000	..	5,000
	Total ..	..	..	7,000	..	7,000
	TANK RESTORATION WORKS.					
	ORIGINAL WORKS—MAJOR.					
	Madura division.					
3	Nos. 267 and 268, Paduyur-Periyakulam tank—improvements to—estimate Rs. 3,835, sanctioned in E.I. (Tank Restoration Scheme) memo. No. 1428 T., dated 5th September 1890, Register No. 71 T.-M. of 1890-91	..	..	2,200	..	2,200
	REPAIRS.					
4	Madura division (lump sum)	5,200	2,350	..	2,350	..
5	Do. (tools and plant)	..	..	150	..	150
	Total, Tank Restoration Scheme ..	..	2,350	2,350	2,350	2,350
	AGRICULTURAL WORKS.					
	RIVER EMBANKMENTS—MAJOR.					
	Trichinopoly division.					
6	Cauvery right bank from Cauvery bridge to old Vennár head, estimate Rs. 6,820, sanctioned in G.O., No. 72 I., dated 7th February 1890	6,820	4,000	..	4,000	..
7	Minor works (lump sum).	1,700	..	500	..	500
	RIVER CONSERVANCY.					
	Repairs.					
8	Trichinopoly division (lump sum)	22,150	500	..	500	..
	Total ..	..	4,500	500	4,500	500

2. *Item* 1.—Additional funds are required in connection with the repairs of tank bunds, &c., damaged by the heavy rains at end of October 1890. This sum was applied for in this office No. 893 M.D. of 17th ultimo and promised to be allotted during the current month (*vide* E.I. memo. No. VI/64 M.D. of 23rd December 1890).

Item 2.—Additional grant is required in connection with the closing of breaches caused by the floods in September and October 1890.

Item 3.—This work was lately sanctioned as a "Major work" by incorporating two minor works; hence a special allotment is necessary.

Item 4.—Surrender proposed to meet the demands for items Nos. 3 and 5.

Item 5.—An allotment is required to meet outlay on tools and plant.

Item 6.—As the compensation for land for earth to be excavated from has not as yet been settled and the item of earthwork is the important one in the estimate, there is no probability of the existing grant being fully utilised before the close of the official year; hence the necessity for the surrender. The Collector has been addressed on the subject.

Item 7.—A sum of Rs. 500 being the amount to be contributed by Government for extending the iron rail fencing to the Kodamurty right bank is required to be paid to the Municipality (*vide* this office No. 1121 T.C., dated 22nd December 1890).

Item 8.—Surrender proposed to meet the demand for item No. 7 above.

ORDER—dated 6th February 1891, No. 105 I., Public Works.

The additional allotment required for item 1 has already been sanctioned in G.O., No. 62 I., dated 20th January 1891. There are no funds available to meet the demand for item 2. The sum of Rs. 2,200 required for item 3 is appropriated by reducing the grant of Rs. 52,000 (not Rs. 5,200 as erroneously entered in the Superintending Engineer's letter) to Rs. 49,800.

2. The amount of Rs. 150 required for item 5 is appropriated from the budget grant of Rs. 1,000 for tools and plant under Tank Restoration investigation.

3. The surrender of Rs. 4,000 from the grant for item 6 is re-appropriated to the right bank of the Gowtami-Godávari from head to junction with the bank canal in the Godávari Western division, for which additional funds are reported to be required. The following deferred telegram will be sent to the Superintending Engineer, I Circle:—

"Further additional grant Rs. 4,000 sanctioned for raising right bank Gowtami-Godávari in Western division, making total grant Rs. 25,930."

4. The sum of Rs. 500 surrendered from the grant for item 8 is appropriated to meet the demand for item 7.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, I Circle.
„ „ „ VI „
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.
PUBLIC WORKS.

Dated February, 6th.

Recd. *Encl.*

G.O., 6th Feb. 1891, No. 105 I.

FEBRUARY.

Modifications of allotments

Sanctioning certain — applied for by the Superintending Engineer, VI Circle.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 21st January 1891, No. 97 P.R.

I have the honor to forward, herewith, for sanction, a revised estimate, with comparative statement, amounting to Rs. 1,63,975, for excavating the north main channel in the first reach, Periyár project.

2. The excess of Rs. 23,320 or about 16½ per cent. on the original amount of Rs. 1,40,655 is mainly due to the fact that no provision for blasting rock was made in the original estimate, apparently on the assumption that rocky bed would not be met with, but, in the present estimate, a sum of Rs. 50,980 has been allowed, giving fair rates to the different nature of the rocky bed, which appears to lie along the line here and there at certain places and in others to a considerable distance as detailed in the estimate.

3. I take this opportunity of pointing out that an increase in the cost for blasting operation has always occurred in all other reaches hitherto excavated.

4. Though liberal provisions are made in this revised estimate with a view to prevent any chance of further revision, as considered by the Executive Engineer, yet it is believed that there will be some saving on the whole. I, therefore, recommend that sanction of Government be obtained to the revised estimate now submitted in supersession of the original estimate of Rs. 1,40,655. This sum is a mistake; it ought to be Rs. 1,16,320. The difference of Rs. 24,335 is owing to a clerical error in calculating the amount for "rough stone pitching."

5. The original level sections and estimates as well as a revised longitudinal section, &c., are herewith forwarded for your perusal and favor of return.

Note by the Chief Engineer, Public Works Department.

Submitted to Government with a recommendation that the revised estimate of Rs. 1,64,000, as slightly raised in this office, be sanctioned.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

4th February 1891.

ORDER—dated 6th February 1891, No. 106 I., Public Works.

The following revised estimate, amounting to Rs. 1,64,000, for excavating the first reach of the Periyár north main channel, is sanctioned in lieu of the provision of

Rs. 1,40,655 made for the work in the sanctioned estimate for the Periyár project, the excess of Rs. 23,345 being met from the balance of the amount reserved for unforeseen works, which will then be reduced to Rs. 4,574 :—

Major Works (Construction).
49. Irrigation.
Periyár Project.
I. Works.
(2) Main Canals and Branches.
L. Earthwork.

	RS.
Excavating north main channel, 1st reach, estimate	1,64,000

2. This sanction has been registered as No. 129 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle, with ten enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.
" Superintendent of Works, No. I Periyár Division.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 6th

Recd. *Encl.*

G.O., 6th Feb. 1891, No. 106 I.

FEBRUARY.

Periyar North Main Channel

Revised estimate, amounting to Rupees 1,64,000, for excavating the first reach of the — sanctioned with remarks.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

Memo. to the Superintending Engineer, III Circle, dated 24th Oct. 1890, No. III/9 A.N.

From Colonel H. SMALLEY, R.E., Superintending Engineer, III Circle, to the Chief Engineer for Irrigation, dated Bellary, 3rd January 1891, No. 2897.

I have the honor to forward a revised plan and estimate for Mudigubba tank prepared in accordance with the general directions contained in your memo. No. III/9 A.N., dated 24th October 1890, for sanction.

The estimate amounts to Rs. 11,287.

ENCLOSURE.

REPORT to accompany the estimate for Mudigubba tank, Imperial list No. 16, Anantapur taluk.

The tank is situated in latitude 14° 31′ N. and longitude 77° 31′ 30″ E. in the Anantapur taluk. It is one of the top tanks of the Singanamalla tank group. The bund is of great strength composed of excellent earth extending up to + 60·00. It closes a narrow gorge between two ranges of low rocky hills and is only some 500 yards in length, the depth being considerable, the mean average of the tank being estimated at about 17 feet, the catchment is hilly and the run-off rapid being hard and stony. The means of surplus is most inadequate and merely consists of two small cuts aggregating 63 feet in length through the ridge to the left of the bund.

2. During the heavy rains of October 1889 the bund was topped, the water rising to the level of + 60, making a clean breach, 300 feet in length, at the left end running sluice No 1.

3. The estimate provides for raising the bund to + 63·00 with a top width of 9 feet and side slopes two to one, for cutting down the rocky ridge to + 56·00 to form an escape, some 500 feet in length, exclusive of the existing channels which will be left open. With these arrangements it is believed that possible maximum water level may be taken as not more than + * 57 and as that only for only very short periods at long intervals.

*This would mean a depth of only 1 foot over the escape.

4. The closing of the breach at the left end and the reconstruction of the sluice having been completed, the actual cost is entered in the estimate in lump sums.

5. Provision is also made for repairing sluice No. 2 and providing it with a more modern arrangement for regulating the supply.

6. Sluice No. 3, the head of which is at present blocked, is a high level one. It will be opened out and put into a working order. A plug and a shutter will be provided as means of regulating it.

No. 19 I.

Submitted to Government with a recommendation that the estimate of Rs. 11,300, as slightly increased in this office, be sanctioned.

RUSSELLKONDA, 24th January 1891.

(Signed) G. T. WALCH,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 7th February 1891, No. 107 I., Public Works.

The following estimate is sanctioned:—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation.
Works for which neither Capital nor Revenue Accounts are kept.
Bellary Division.
Original Works.

	RS.
Mudigubba tank, No. 16 of list of "Imperial" tanks, Anantapur district. Improving the —, estimate	11,300

2. This sanction has been registered as No. 130 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, III Circle, with eleven enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.
" Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 7th

Recd. *Encl.*

G.O., 7th Feb. 1891, No. 107 I.

FEBRUARY.

Mudigubba Tank, Anantapur District

Estimate of Rs. 11,300 for improving the —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 17th January 1891, No. 972 M.D.

I have the honor to submit, for your approval and sanction of Government, the accompanying revised estimate, amounting to Rs. 3,910, for improvements to No. 156, Vandiyur tank, in the Madura taluk, Madura district.

2. The original and first revised estimates for the repairs of this tank were sanctioned by me, as the proposed outlay in each case was within the average revenue of the tank.

3. As the amount of the present revised estimate exceeds the average revenue of the tank, the work is classed under original works, and the estimate is submitted for the sanction of Government.

4. The necessity for the revision is due to the reconstruction of the old revetment, which is much displaced and out of order.

ENCLOSURE.

REPORT to accompany revised estimate for improvements to No. 156, Vandiyur tank.

	RS.
Amount of estimate	3,910

This is the second revised estimate submitted for sanction, the first one having been sanctioned by Superintending Engineer in his No. 192 M.D., dated 2nd June 1890.

Area of irrigation	Acs. 460
Revenue	Rs. 2,071

2. Improvements and repairs to calingulahs and new revetments to bund provided in the first revised estimate have been nearly carried out. This estimate provides in addition for rebuilding nearly all old revetment. The old revetment is so much displaced and out of order that it cannot pretend to protect the inner slope of the bund from the ravages of high waves to which it is subject. The soil composing the bank is of that soft black description which soon melts away on coming into contact with water. The tank cannot be said to be safe and secure without putting in order the old revetment.

3. The old revetment will be re-built, as far as possible, as per sample section shown on plan. All new stone brought in will be separately built and measured.

4. As the bank is low in several places, there is provision in the estimate for raising it to full height. Longitudinal section of the bund is herewith appended.

5. A sum of Rs. 796-8-0 paid by Revenue Department for land taken up for the safety of the bund is also provided for in this estimate.

6. The rates for old and new revetments in the original estimate are too low to allure contractors to take up the work; they are, therefore, slightly increased. The distance of stone quarry is a little greater than what was once thought.

ORDER—dated 7th February 1891, No. 108 I., Public Works.

The following revised estimate, amounting to Rs. 3,910, for improvements to Vandiyur tank in the Madura division, is sanctioned in supersession of the estimate of Rs. 1,843, sanctioned for the work by the Superintending Engineer, VI Circle :—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation works for which neither Capital nor Revenue Accounts are kept.
Madura Division.
Original Works.

	RS.
Improvements to Vandiyur tank, No. 156 of list of "Imperial" works, estimate	3,910

2. This sanction has been registered as No. 131 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle, with five enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 7th.

Recd. *Encl.*

G.O., 7th Feb. 1891, No. 108 I.

FEBRUARY.

Vandiyur Tank, Madura Division

Estimate of Rs. 3,910 for improvements to —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From H. S. TAYLOR, Esq., Superintendent of Works, No. I Periyár Division, to the Chief Engineer, Public Works Department, dated Periyár, 16th January 1891, No. 399 S.E.

I have the honor to submit, herewith, the enclosed two completion reports for the works noted below and to request that the sanction of Government, under para. 352 C. of the Public Works Code, may be obtained for the excess over the estimates to enable the Examiner of Public Works Accounts to admit the charges finally :—

(1) Lock No. I.
(2) Tunnel turbine channel.

2. The reason for the excess on the work for lock I is chiefly due to more earthwork having been found necessary than provided for in the estimate, to the pulling down of some concrete made with bad lime, to the carriage of stone and iron work and to the baling, concrete boxes and grass revetment, for which no provision is made in the estimate.

3. The excess on the work for tunnel turbine channel is trifling and less than 5 per cent. This is due in some measure to maintenance of the work during the year.

Office-note to the Examiner, Public Works Accounts, dated 22nd January 1891, No. 20.

Office-note from the Examiner, Public Works Accounts, dated 29th January 1891, No. 604.

ORDER—dated 7th February 1891, No. 109 I., Public Works.

The excess outlay on lock No. I at Mullaya Pangan has already been dealt with in G.O., No. 59 I., dated 19th January 1891. The Examiner of Public Works Accounts is authorized to pass the expenditure incurred on the tunnel turbine channel, the excess of Rs. 177 being met from the balance of the amount reserved for unforeseen works of the Periyár project, which will then be reduced to Rs. 4,397.

2. This sanction has been registered as No. 132 I. of 1890-91.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer for Irrigation.
" Superintendent of Works, No. I Periyár Division, with two enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 7th.

Recd. *Encl.*

G.O., 7th Feb. 1891, No. 109 I.

FEBRUARY.

**Tunnel Turbine channel,
No. I Periyar Division**

The Examiner of Public Works Accounts authorized to pass the excess expenditure incurred on the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—again G.O., dated 23rd July 1890, No. 402 I., Public Works.

Order—dated 9th February 1891, No. 110 I., Public Works.

Ordered that the following notification be published in the *Fort St. George Gazette* :—

NOTIFICATION.

His Excellency the Governor in Council is pleased to declare that the rules heretofore in force for the regulation of navigation on the Dumagudiem canal and the navigable canals of the Godávari and Kistna districts shall continue to be in force and be deemed to be rules made under section 16 of Madras Act II of 1890.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
To Superintending Engineers.
To the Revenue Department.
,, Legislative Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 9th.

Recd. *Encl.*

G.O., 9th Feb. 1891, No. 110 I.

FEBRUARY.

Canals

Regarding rules for the regulation and navigation on the Dumagudiem canal and the navigable — of the Godávari and Kistna districts.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 26th January 1891, No. 977 T.N.

In continuation of my letter No. 1266 T.C. of the 18th instant, I have the honor to request that the following modification of allotments in the Tinnevelly division may be sanctioned at an early date :—

Item No.	—	Existing grant.	Modification of allotment applied for.		Modification of allotment proposed.	
			Reduction.	Increase.	Reduction.	Increase.
		RS.	RS.	RS.	RS.	RS.
	IRRIGATION.					
	42. MAJOR WORKS (WORKING EXPENSES).					
1	Minor extensions and improvements (lump sum) ..	2,390	..	150	..	150
	43. MINOR WORKS AND NAVIGATION.					
	WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.					
	Original Works—Major.					
2	Vallakulam channel and Vallakulam and Karikaraya-Periyakulam tanks, improving the —, estimate Rs. 2,540, sanctioned in G.O., No. 425 I., dated 5th September 1889	2,540	540	..	540	..
3	Kakanullur channel, improving the —, estimate Rs. 17,205, sanctioned in G.O., No. 465 I., dated 19th May 1885	900	..	220	..	220
4	Pavur channel and tank, improving the —, estimate Rs. 18,865, sanctioned in G.Os., Nos. 134 I., dated 10th February 1885; 423 I., dated 5th September 1889	2,350	..	167	..	167
		..	540	387	540	387
	TANK RESTORATION WORKS.					
	Original Works—Major.					
5	No. 18 Periyakulam of Vallakulam, constructing a scouring sluice and providing revetment to front slope, estimate Rs. 4,060, sanctioned by E.I. (T.R.S.) in Register No. 50 T./T. of 1890-91	..	..	1,000	..	1,000
6	Minor works (lump sum)	10,000	1,000	..	1,000	..
		..	1,000	1,000	1,000	1,000

2. *Item* 1.—The additional grant is required to pay for the dues on works already started.

3. *Item* 2.—The work has nearly been completed and the amount surrendered is a saving on it.

Items 3 *and* 4.—Certain extra works were found necessary and have been executed. The additional grants are required to meet the excess outlay over the existing grants.

Item 5.—It is proposed to spend a sum of Rs. 1,000 on this work during the current official year and this sum may be met from the amount surrendered from item 6.

Item 6.—Surrender proposed to meet the demand for item No. 5.

ORDER—dated 9th February 1891, No. 111 I., Public Works.

The Superintending Engineer, VI Circle, will propose a re-appropriation from the existing grants for other works of the Srívaikuntham anicut system to meet the small demand for item 1, as there are no other funds available to meet the demand.

2. The amounts required for items 3 and 4, aggregating Rs. 387, are appropriated from the amount of Rs. 540 surrendered from the grant for item 2 and the balance of the surrender, viz., Rs. 153, is added to the reserve under Irrigation and Navigation works for which neither Capital nor Revenue Accounts are kept, Original works.

3. The amount surrendered from the grant for item 6 is appropriated to meet the demand for item 5.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 9th.

Recd. *Encl.*

G.O., 9th Feb. 1891, No. 111 I.

FEBRUARY.

Modifications of Allotments

Passing orders on application for — in the Tinnevelly division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From the Executive Engineer, Trichinopoly Division, to the Superintending Engineer, VI Circle, dated 27th January 1891, No. 655 S.E.

I have the honor to request that you will be so good as to instruct me if I can carry out works under 43. Minor works and Navigation, Works for which neither Capital nor Revenue accounts are kept, "Repairs," in anticipation of the provision of the additional allotment of Rs. 5,000 applied for in the last modification statement. I wish to order the execution of the following emergent works in addition to those already arranged for—

(1) Closing breaches in Kutlaynatoo voikal; estimate Rs. 870—Register No. 138 of 1890-91.
(2) Closing breaches in Ponnery channel, left bank, between Maruthyar under-tunnel and Sathambady head sluice; estimate Rs. 220—Register No. 137 of 1890-91.

Both recently received sanctioned.

No. 1360 T.C.

The additional grant of Rs. 5,000 applied for by the Executive Engineer was included in the application for modification of allotments submitted to the Chief Engineer for Irrigation in this office No. 1266 T.C. of 18th January 1891. Pending orders thereon the Executive Engineer can proceed with the emergent works.

(Signed) A. C. SMITH, Lt.-Col., R.E.,
Superintending Engineer, VI Circle.

29th January 1891.

No. 1361 T.C.

Copies submitted to the Chief Engineer for Irrigation for information.

(Signed) A. C. SMITH, Lt.-Col., R.E.,
Superintending Engineer, VI Circle.

29th January 1891.

ORDER—dated 9th February 1891, No. 112 I., Public Works.

In G.O., No. 105 I., dated 6th February 1891, passed on the Superintending Engineer's letter No. 1266 T.C., dated 18th January 1891, the demand referred to has not been complied with owing to want of funds. From the surrenders since reported there are now Rs. 1,962 available and this sum is appropriated to meet in part the demand of Rs. 5,000.

2. The following deferred telegram will be sent to the Superintending Engineer, VI Circle :—

"Your No. 1361 T.C., [29th ultimo. Rs. 1,962 allotted to Trichinopoly for irrigation repairs against Rs. 5,000 applied for. No more funds available now."

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 9th.

Recd. *Encl.*

G.O., 9th Feb. 1891, No. 112 I.

FEBRUARY.

Irrigation Repairs, Trichinopoly

Allotting Rs. 1,962 for --.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

Proceedings of the Madras Government, Revenue Department, dated 2nd February 1891, No. 67.

ORDER—dated 10th February 1891, No. 114 I., Public Works.

Communicated to the Superintending Engineer, V Circle, for information and guidance.

2. The Superintending Engineer should reserve such portions of the following estimates as are suitable for relief works for execution by departmental labor :—

(1) Pallarambakam tank—repairs.
(2) Kambakkam tank – repairs.
(3) Diversion of Narainavaram river.

He should also prepare a list of other works, which can, if necessary, be utilized for the purpose of affording employment in Ponnéri and Tiruvallúr taluks.

3. The submission of the estimate for flood banks to the Kortalayár river should be expedited.

4. The attention of the Superintending Engineer is drawn to that portion of para. 1 of G.O., No. 67, Revenue, dated 2nd February 1891, which relates to the relaxation of the ordinary rules of the department for the payment of daily laborers.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 10*th*.

Recd. *Encl.*

G.O., 10th Feb. 1891, No. 114 I.

FEBRUARY.

Relief Works, Chingleput District

Proceedings, Revenue Department, directing to frame a programme of — which can be started at short notice, communicated to the Superintending Engineer, V Circle, with remarks.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 2nd February 1891, No. 39 E.I.

I have the honor to submit, for very early sanction, plan and estimate of Rs. 6,490 for making a diversion of the Náráyanavaram river at Ponnéri.

The necessity for the work is fully explained in the report accompanying the estimate. This work would be well suited as a relief work in Ponnéri taluk.

ENCLOSURE.

REPORT and specification to accompany plans and estimate for making a diversion of the Náráyanavaram river at Ponnéri.

	RS.
Amount of estimate	6,220

[*References.*—Superintending Engineer's No. 3557, dated 1st November 1890, and Executive Engineer's endorsement No. 3446, dated 8th November 1890.]

Report.—The river Náráyanavaram or Árni passes close to Ponnéri and just above the town; it turns to the north forming a right angle with its direction above. Where this turn takes place (see plan attached), there has been a gradual encroachment going on year by year. The extent of this erosion since 1869, as shown in yellow, is not less than 150 feet wide. The flood bank at this part breached in two places, marked E and F, and caused great damage. The Superintending Engineer visited the place in the latter end of 1889 and instructed Mr. Taylor, Supervisor, to prepare a plan and estimate for a groyne. This estimate amounts to Rs. 6,660, and the Superintending Engineer returned it with No. 3557, dated 1st November 1890, not approved.

It is thought a diversion will answer the purpose better, so plans and estimate are forwarded. The plans show the nature of the diversion and give all particulars. It will be 50 feet wide with a fall of 1·285 per 1,000, which, in ordinary floods, gives a velocity of 8·889 feet per second. The river has but a fall of 0·7 per 1,000, which gives a velocity, in ordinary floods, of 6·146 feet per second. This diversion would soon widen so as to discharge the whole water of the river and the old bed would silt up. A temporary groyne of posts is to be put at H to make sure of keeping the deep bed close against the left bank at A as now. This is a work that is well suited to relieve the present distress.

Specification.—The work is to be done according to the standard specification and the custom of the Public Works Department and to the satisfaction of the Executive Engineer.

(Signed) C. H. B. BURLTON,
Executive Engineer, Chingleput Division.

22nd January 1891.

(Signed) A. MILNE, Lieut.,
Assistant Engineer.

No. 20 I.

Submitted to Government.

The amount of the estimate has been reduced in this office from Rs. 6,490 to Rs. 6,220 owing to errors in calculation.

CHEPÂK,
5th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department,
Irrigation Branch.

ORDER—dated 12th February 1891, No. 116 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
43. Minor Works and Navigation.
Agricultural Works.
River Embankments.
Original Works.

	RS.
Making a diversion of the Nárâyanavaram river at Ponnéri, estimate.	6,220

2. This sanction has been registered as No. 133 I. of 1890-91.

3. The Superintending Engineer will arrange for the work being started as soon as possible. To meet the current year's expenditure on this work a sum of Rs. 3,000 surrendered by the Superintending Engineer, II Circle, from the grant for the Kistna Western division under Agricultural works, river conservancy, repairs, is appropriated. Should a further allotment be required, the Superintending Engineer, V Circle, will apply for it in due course.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, V Circle, with four enclosures.
„ „ „ II „
„ Examiner, Public Works Accounts.
„ Revenue Department.
„ Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 12th.

Recd. *Encl.*

G.O., 12th Feb. 1891, No. 116 I.

FEBRUARY.

Narayanavaram River

Estimate of Rs. 6,220 for making a diversion of the — at Ponnéri, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From Lieut.-Colonel R. R. E. DRAKE-BROCKMAN, R.E., Superintending Engineer, IV Circle, to the Chief Engineer for Irrigation (through the Examiner, Public Works Accounts), dated Ootacamund, 30th January 1891, No. 18-E.I.

In submitting completion report for improving the tank and channel of Amani Talava or Panchapalli, I have the honor to request you will be good enough, under para. 955 of the Public Works Code, to obtain the sanction of Government authorizing the Examiner of Public Works Accounts to pass the excess expenditure.

No. 762.

Forwarded.

2. The completion report has been checked and found correct.

C. H. P. CHRISTIE, Major, R.E.,
Examiner, Public Works Accounts.

5th February 1891.

ORDER—dated 12th February 1891, No. 117 I., Public Works.

The Examiner of Public Works Accounts is authorized to pass the outlay incurred in improving the Amani Talava or Panchapalli tank and channel in the Coimbatore division.

2. The reasons for the excess expenditure should have been summarised in the foregoing letter from the Superintending Engineer.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, IV Circle, with one enclosure.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 12th.

Recd. *Encl.*

G.O., 12th Feb. 1891, No. 117 I.

FEBRUARY.

Panchapalli Tank

The Examiner, Public Works Accounts, authorized to pass the outlay incurred in improving the Amani Talava•or — and channel in the Coimbatore division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 18th December 1890, No. 1070-G.N.

I have the honor to inform you that the Executive Engineer, Rushikulya division, has incurred an excess expenditure of Rs. 127 over the estimate (Rs. 7,810) for the work "constructing No. 4 under-tunnel, Rushikulya canal," sanctioned in G.O., No. 820 I., of 29th November 1886, under "Irrigation, 35. Famine Relief and Insurance protective works," and to request that you will be good enough to obtain the sanction of Government to the same.

2. The excess is due to the insufficient provision made in the estimate for excavating foundations.

Office-note to the Examiner, Public Works Accounts, dated 9th January 1891, No. 9.
" from the " " " 16th " " 275.

Order—dated 12th February 1891, No. 118 I., Public Works.

The Examiner of Public Works Accounts is authorized to pass the expenditure incurred on the work referred to in the foregoing letter (No. 4 under-tunnel, Rushikulya canal), the excess outlay of Rs. 127 being met from the balance of the lump sum provision available for unforeseen works of the Rushikulya project, which will then be reduced to Rs. 20,937.

2. This sanction has been registered as No. 134 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 12th.

Recd. *Encl.*

G.O., 12th Feb. 1891, No. 118 I.

FEBRUARY.

No. 4 Under-tunnel, Rushikulya Canal

The Examiner, Public Works Accounts, is authorized to pass the excess expenditure incurred on —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers :—

Proceedings of the Government of India in the Public Works Department (Account—Irrigation), dated Calcutta, 5th January 1891, No. 1 A.—I.

Provisional grants for 1891-92 *for irrigation works.*

Read—the following papers :—

Letter No. 2779 S., dated 2nd October 1890, from the Secretary to the Agent to the Governor-General, Rajputana.

Letter No. 9425, dated 23rd September 1890, from the Secretary to the Chief Commissioner, Burma.

Letter No. C. 670 I., dated 20th September 1890, from the Secretary to the Government of the North-Western Provinces and Oudh.

Letter No. 5298 A.—I., dated 27th September 1890, from the Secretary to the Government of the Punjab.

Letter No. 6375 A.—I., dated 3rd December 1890, from the Secretary to the Government of the Punjab.

Letter No. 537 I., dated 23rd September 1890, from the Secretary to the Government of Madras.

Letter No. $\frac{144}{1710}$ A.—I., dated 24th September 1890, from the Secretary to the Government of Bombay.

Letter No. $\frac{170}{2177}$ A.—I., dated 12th December 1890, from the Secretary to the Government of Bombay.

Public Works Department telegram No. A. 212, dated 15th December 1890, to the Agent to the Governor-General, Baluchistan.

Telegram, dated 30th December 1890, from the Agent to the Governor-General, Baluchistan.

Resolution—

The provisional grants for Capital expenditure during 1891-92 on Major Irrigation Works not charged against Revenue have already been fixed in the orders issued in Public Works Department letters Nos. 69—70 A.—I., dated 15th October 1890. The schedules of demands for other irrigation works having since been considered, the Government of India is pleased to sanction the provisional grants shown in the following table :—

—	PROVISIONAL GRANTS, 1891-92.		
	35. Construction of Protective Irrigation Works.	42. Major Works (Working Expenses).	43. Minor Works and Navigation.
	RS.	RS.	RS.
Rajputana	...	...	44,000
Baluchistan	...	...	10,000
Upper Burma	...	...	5,00,000
North-Western Provinces and Oudh	27,000	1,00,000	6,000
Punjab	18,000	21,50,000	6,50,000
Bombay	2,04,000	3,50,000	17,50,000
Madras	3,50,000	11,00,000	...
Total ...	5,99,000	37,00,000	29,60,000

2. 35. *Construction of Protective Irrigation Works.*—The grant of Rs. 2,04,000 for works in Bombay is to provide for expenditure on the Nira canal and the Mhaswad tank. The Government of India regrets that no grant can be sanctioned for the Chankapur and Samrad tank projects for the reasons stated in Public Works Department letter No. 205 I., dated 23rd ultimo.

3. 42. *Major Works (Working Expenses).*—The Government of Madras should endeavour to provide for the maintenance of existing works out of the provisional grant of 11 lakhs, but, if this is found to be impracticable, the fact should be reported when submitting the preliminary issue of the budget estimate.

4. 43 *Minor Works and Navigation.*—The provisional grant of Rs. 17,50,000 for irrigation works in Bombay should be devoted to the completion of works in progress and the maintenance of existing works. The Government of India regrets that financial considerations will not admit of any new works involving large outlay being undertaken at present.

5. The provisional grant for works in Upper Burma is admitted on the understanding that the money will not be spent except on well-considered schemes, the estimates for which have been sanctioned by competent authority.

6. The proposed grant of Rs. 19,000 for the construction of the Ramsur tank feeder in Rajputana has been disallowed pending submission of a report explaining the necessity for the work.

Order—

Ordered that the foregoing be communicated to the Local Governments and Administrations noted in the margin for information and guidance, with the request that the preliminary issues of the budget estimates, prepared for the amounts now sanctioned, may be submitted so as to reach the Government of India punctually on the 15th February next.

The Governments of Madras, Bombay, North-Western Provinces and Oudh, and the Punjab
The Chief Commissioner, Burma.
The Agents to the Governor-General, Rajputana and Baluchistan.

Ordered, also, that a copy be forwarded to the Finance Department for information.

(Signed) J. G. FORBES, Colonel, R.E.,
Secretary to the Govt. of India.

From Lieut.-Colonel A. G. BEGBIE, R.E., Deputy Secretary to the Government of India, Public Works Department (Account—Irrigation), to the Secretary to the Government of Madras, Public Works Department, dated Calcutta, 8th January 1891, No. 2 A.—I.

In reply to your letter No. 721 I. of the 5th ultimo, I am directed to communicate the sanction of the Government of India to an additional grant of Rs. 75,000 for expenditure during 1891-92 under "49. Irrigation, Capital expenditure not charged against Revenue," and to state that no more funds are available for expenditure in 1891-92 under that head.

2. With this addition the total provisional grant for the ensuing year under "49. Irrigation, Capital Expenditure not charged against Revenue," will stand at Rs. 13,75,000.

ORDER—dated 12th February 1891, No. 119 I., Public Works.

Communicated to the Chief Engineer for Irrigation for information and guidance in preparing the preliminary budget estimate for major works for next year.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 12th.

Recd. *Encl.*

G.O., 12th Feb. 1891, No. 119 I.

FEBRUARY.

Irrigation Works

Letters from the Government of India intimating the provisional grants for — for 1891-92, communicated to the Chief Engineer for Irrigation.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel R. R. E. DRAKE-BROCKMAN, R.E., Superintending Engineer, IV Circle, to the Chief Engineer for Irrigation, dated Coimbatore, 5th January 1891, No. 1 E.I.

[*Reference.*—Memorandum, No. IV/23 S.L. of 11th ultimo.]

I have the honor to submit, for approval and assignment of funds, plans and estimates, amounting to Rs. 2,700, for providing two regulators to the supply channel of the Barúr tank, duly revised, with reference to your instructions conveyed in the above memorandum.

2. As regards my original proposal to introduce cast iron standards behind the lower portion of shutters, I may add that the shutters will only have to be lowered when there is less than 2 feet flowing down the channel, so that no pressure will be brought against them before they reach the top of the standards, and, as such, the bottom of the shutters has very little chance of catching or striking against the standard. I have now provided instead ⊢ iron straps, 2″ × 2″ × ¼″, at one and three feet, respectively, from the bottom of shutters.

3. The gearing beams have, as suggested, been lowered.

4. The mileage of the sluices shown in the diagram herewith returned are correct revised ones, the original mileage laid down on the channel having been found to be incorrect.

ENCLOSURE.

REPORT to accompany estimate, amounting to Rs. 2,770, for providing two regulators in the supply channel to Barúr tank.

The channel is taken off, at Nedungal anicut, from the left bank of the Poniár river ; it is seven miles long, the width at bottom being 20 feet, slope of bed 2 feet per mile, and side slopes 1½ to 1. The full supply depth is 5 feet and discharge 379 cubic feet per second.

2. In the estimate for Barúr tank project provision was made for building 15 distribution sluices and three tank sluices, being one for each tank, giving a total of eighteen in the supply channel to the tank, * with a view to irrigating a large area directly from the channel. To date fourteen distribution and three tank sluices are constructed, but the construction of the remaining one is deferred until experience shows whether it will be required, for at present it seems probable seventeen sluices will be adequate to supply all land available.

* Barúr tank.
(Intld.) J. W. M.

3. Owing to the bed fall of the channel being 2 feet per mile and to there being no weirs or regulators across it, it is impossible to keep any depth of water in the channel unless the head sluice is open and a considerable supply is entering from the river ; and, when Barúr tank is full, the sluice is closed and then the supply is limited to the water which leaks through the sluice and to the small supply derived from springs, but this supply is very little and quite inadequate to irrigate the lands under the distribution sluices. Under these circumstances it is practically impossible, at present, to utilise most of the distribution sluices. On the other hand it is very desirable to irrigate directly from the channel as much as possible of the land available rather than send water on to the tank and distribute it from there to lands eight and ten miles off on account of the waste involved in sending it so far.

4. In these circumstances it is proposed to have two regulators, one to convert by fixing screw shutters across the 3 vents out of 4 of the foot bridge over the channel at 3 miles 3,156 feet and the other to build at 6 miles 1,980 feet by laying a thick wall (with 3 vents in it, each 8 feet broad) across the channel, having only a platform over to enable those who work with the shutters to pass along behind the gearing, providing for a depth 5 feet 3 inches of water in front of the former when the shutters are down and 5 feet at the latter; the crest of outlet No. 18, a short distance above the accommodation bridge, being raised 3 inches to prevent water escaping over crest. If the arrangement proposed is carried out, an adequate depth of water can be maintained on the sill of each distribution sluice from Nos. 4 to 13 inclusive whenever water is available. The actual depth of water there will be on each sluice is shown on the diagram accompanying the plan for the regulators. The only outlet that will be affected if water is held to the levels shown on the diagram is No. 18, the crest of which at present is 3 inches too low; but provision for raising it 3 inches is made in the estimate.

5. In regard to distribution sluices Nos. 1, 2 and 3, nearly all the land under these is at present irrigated, the supply in the channel with the head sluice almost closed being sufficient for requirements. So it is not necessary to arrange to give a better supply to them, and, with regard to distribution sluices from Nos. 4 to 13, Nos. 8 and 13 are the most important, for there is a large area of good land under each.

6. If the proposal to provide two regulators is carried out, it will be possible to store in the tanks, through which the channel passes, more water than can now be stored. At present, the level of the channel at the point where it leaves each tank is practically the F.T.L. of each tank, for, as soon as the head sluice is closed, the water in the tanks passes off to Barúr tank until it falls to the bed level at the exit from each tank; this level is therefore practically F.T.L. The tanks that will be affected are Morasampatti and Velangamoodi. The former by regulator at 3 miles 3,156 feet and the latter by regulator at 6 miles 3,969 feet. The level of the crest of weir of Morasampatti tank is 130·61 against 125·34 level of channel, at present, practically the F.T.L., but, with the regulator, water can be held up to 126·86. In the case of Velangamoodi tank, level of crest of weir is 124·21 and channel bed at exit from tank 119·21 against 122·18; the level water can be held up by the regulator.

7. Regarding the design for the regulators, the piers of the foot bridge being only $1\frac{1}{2}$ feet thick are rather thin, but the weight of pier, arch, and parapet gives a resistance to sliding of more than three times the maximum pressure against one pier; so it is considered the piers will not give way, and, regarding the shutters, it is believed that, unless screw shutters are provided, there will always be great trouble about regulating the depth of water in supply channel.

Order—dated 12th February 1891, No. 120 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
42. Major Works (Working Expenses).
Barúr Tank Project.
Extensions and Improvements.
(2) Main Canals and Branches.
D. Regulators.

	RS.
Providing two regulators to the supply channel of the Barúr tank, estimate ...	2,770

2. This sanction has been registered as No. 135 I. of 1890-91.

3. The question of the provision of funds for the work now sanctioned will be separately dealt with.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, IV Circle, with 7 enclosures.
,, Examiner, Public Works Accounts.
,, Revenue Department.
,, Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 12th.

Recd. *Encl.*

G.O., 12th Feb. 1891, No. 120 I.

FEBRUARY.

Barur Tank

Estimate of Rs. 2,770 for providing two regulators to the supply channel of the—, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From Colonel O. ST. JOHN, Resident in Mysore, to the Chief Secretary to the Government of Madras, dated Bangalore, 10th January 1891, No. 97/510-90.

It is the intention of the Mysore Durbar to take in hand shortly the construction of a new reservoir across the Gardachala stream, an affluent of the Jayamangala river, in the Maddagiri taluk of the Mysore State.

2. The site for the proposed tank is situated about 25 miles above the frontier. It is believed that there are no tanks across the Jayamangala in Madras territory, but there are feeders therefrom, without head works, supplying tanks in the valley of the river.

3. The new tank will hold some 2,700 units of water (1 unit = 10,000 cubic yards) and irrigate 2,000 acres, and it will not, it is said, interfere with the supply to the above-mentioned feeders, which depend on river floods only; floods in the Gardachala and Jayamangala are frequent and heavy and the former reservoir will absorb but a small portion of the drainage of its watershed.

4. This reference is made, at the instance of the Durbar and without prejudice to the case now before the Government of India regarding the rights of Mysore to its rainfall, in order to avoid possible delay which might arise from opposition to the project being raised by the Madras ryots before final settlement of the general question.

Transferred to the Public Works (Irrigation) Department.

J. F. PRICE,
Chief Secretary.

17th January 1891.

ORDER—dated 12th February 1891, No. 121 I., Public Works.

Ordered that the Resident be addressed in the Political Department.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Political Department, with copy of draft letter.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 12th.

Recd. *Encl.*

G.O., 12th Feb. 1891, No. 121 I.

FEBRUARY.

Tank.

Ordered that the Resident] in Mysore be requested, in the Political Department, to furnish certain information regarding the proposed — in the Gardachala stream in Maddagiri taluk.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

No. 485 C.

Inspection notes of works in No. I Periyár Division, January 1891.

Main dam.—The space between the inner and outer walls at the rear face of the dam has been filled with concrete with the exception of a small piece which was in progress at the time of inspection ; the result appears to be perfectly successful, all leakage having been stopped.

2. The inner wall in the front of the dam is nearly completed and the filling between this and the outer wall will be put in hand as soon as that between the rear walls is finished.

3. Concrete for the main body of the dam between the front and rear walls has been begun.

4. A large quantity of earth and boulders has been removed on both flanks, and on the left flank especially the ground is much more satisfactory than was expected ; solid rock has been exposed up to about 30 above datum, except in one part towards the front of the dam, where the rock is somewhat fissured ; it is, however, perfectly safe to build on, backed up as it is by a reef of quite sound rock, provided care be taken to fill all cracks with mortar of nearly pure Portland cement.

5. The work has been greatly helped by the unusual dryness of the season, but has been retarded by want of pumping power ; this latter difficulty is now at an end, and the progress during the next three months should be rapid.

6. Much difficulty has been experienced in removing earth and gravel from crevices in the rock, and also, at times, in determinig whether rock is solid or not. It is considered that for these purposes a powerful water jet would be of great use, and a small pump of the fire engine class, worked by steam from one of the existing boilers, would probably repay purchase. Pumps of this kind, in fact fire engines without the boiler are made by the leading makers of this class of machinery ; enquiry will be made, with the sanction of Government, as to whether one can be obtained locally, if not an indent should be submitted for its purchase in England.

7. *Escape.*—The progress has been good, but calls for no special remark ; the Sub-divisional officer states that there is some difficulty in keeping up the supply of stone for the main dam, the inclined tramway being worked with single truck loads ; it is believed that the present rope is strong enough to take two trucks at a time, but this should be settled by experiment and if it is found to be unsafe the necessary quantity of $1\frac{1}{2}$ inch steel rope or $1\frac{3}{4}$ inch iron rope, either of which is amply strong enough for loads of three trucks, should be obtained from Messrs. Burn and Company, Calcutta, in anticipation of formal sanction to the purchase.

8. *Water carriage on Mulya Panjan.*—The construction of the new weir at No. II lock is making good progress, and there should be no difficulty in ensuring its completion during the present dry season.

9. The unloading arrangements at No. II dam were inspected ; the arrangement for tipping the boxes is not satisfactory and it will be better to empty them direct into an ordinary tip wagon from which the material can be emptied into the shoot which conveys it into the boat below. The original boxes containing 48 cubic feet

have been found unweildy and have been cut in half, but the half boxes are just too large to pack conveniently into the barges, and future boxes should be made an inch and a half shorter. It is believed that there will be no difficulty in enlarging one of the existing side tipping trucks so as to enable it to hold the contents (24 cubic feet) of one of the reduced boxes. To avoid unnecessary lift, the rail level at each dam should be lowered so that the top of the truck body is about level with the crest of the dam, the existing pipe piers being replaced by wooden trestles. A similar alteration should be made at No. I dam, and unloading arrangements on the same principle constructed at No. 3 where nothing has yet been done. An additional crane will be required for the latter and will be ordered from this office.

10. A rather heavy leak has appeared round the left flank of No. II dam and the water will be lowered to enable this to be examined and stopped from above.

11. *Watershed cutting.*—A certain amount of progress has been made with this portion of the work, but the cross bank which was originally put up to keep the Mulya Panjan out of the cutting has now to be retained to keep water in it for the supply of the Thekady camp; until this bank is removed the work cannot proceed systematically from the southern end northwards. At present most of the work being done is near the northern end, and on a horizontal face which is not an economical mode of quarrying. If it is proposed to do any large amount of work of this part of the cutting, one or two shafts should be sunk of the full width and down to sill level, the quarrying being done from the vertical faces thus obtained.

12. *Tunnel.*—Machine drilling is practically at a standstill, the water-supply in Mulya Panjan having run down to almost nothing. What little water there is should be reserved for the supply of the Thekady camp which at present is dependent on the small quantity stored in the cutting. Machine drilling must be abandoned altogether, as much work as possible being done by hand.

13. A reference has been made to the Ceylon Government regarding a small plant the purchase of which will enable work to be done from both ends, and in order to obtain an additional working face it has been decided to sink a second shaft about 1,500 feet north of the present one; the depth of this shaft will be about 120 feet and its cost about Rs. 12,000, but a considerable portion of this will be saved by the reduction in the cost of removing the spoil owing to the shorter average distance it has to be carried, and the balance will be more than repaid by increased speed and convenience of working.

14. A direct acting steam pump is required for each shaft, and these will be ordered by this office if their local purchase be sanctioned by Government.

15. *Plant and machinery.*—The erection of the concrete-making machinery in the main workshed is nearly completed, and the machinery can be brought into operation as soon as the completion of the filling between the front walls of the main dam renders it safe to raise the water to the required level; this will probably be by the middle of February or perhaps a little earlier. The steam launch has been put together and is in running order, though at present she is chiefly employed in supplying steam for the pulsometers on the main dam. The manner in which this job has been done is most creditable to Mr. Logan, the new Superintendent of Workshops. When the boiler was tested by hydraulic pressure before steam was got up, it was found that the water spurted through the lagging in every direction, and on removing the latter it was found that a hole which had been drilled in the boiler shell for some purpose or other had not been plugged up before the lagging was put on. The attention of the India office should, it is considered, be drawn to this piece of carelessness which, but for the Executive Engineer's having taken the precaution of testing the boiler with cold water, might have caused serious annoyance, and possibly injury to one of the attendants.

16. Considerable trouble has been experienced owing to the consumption of steam in the pulsometers being much in excess of what was expected, or of what the makers stated to be necessary; it has in fact been found that to supply a given pulsometer requires just about double the boiler power stated to be "suitable." It is believed that this is in part due to the great length of unclothed steam pipe between

the boiler and the pump and in all cases where steam has to be conveyed for more than a few hours to a distance from the boiler, the steam pipe should be covered with cloth and whitewashed.

17. *General remarks.*—The progress on the whole is very satisfactory, the original grant for the year having already been supplemented by one lakh, and application has now been made for an additional lakh, which will, it is believed, be fully utilised. The health of the workmen is very good, considering the extreme dryness of the season.

(Signed) J. PENNYCUICK, Colonel, R.E.,
Chief Engineer, P.W.D.

27th January 1891.

ORDER—dated 14th February 1891, No. 123 I., Public Works.

Communicated to the Superintendent of Works, Periyár Project, for information and guidance.

2. The local purchase of the crane and pumps referred to in the Chief Engineer's note is sanctioned.

3. The attention of the Secretary of State will be invited to the defects in the boiler of the steam launch now brought to notice.

4. Ordered that a copy of these Proceedings be forwarded to the Government of India for information, in continuation of this department endorsement No. 58 I., dated 19th January 1891.

(Here enter No. 124 I., dated 14th February 1891.)

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Superintendent of Works, Periyár Project.
,, Chief Engineer for Irrigation.
,, Examiner, Public Works Accounts.
,, Revenue Department.

ENDORSEMENT—dated 14th February 1891, No. 124 I., Public Works.

Forwarded.

(By Order.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 14th.

Recd. *Encl.*

G.O., 14th Feb. 1891, Nos. 123 I., 124 I.

FEBRUARY.

Periyar Project Works

Forwarding, with remarks, the notes of inspection of the Periyár Project works by the Chief Engineer, Public Works Department.

PUBLIC WORKS DEPARTMENT.

Letter—to

The Right Honorable the SECRETARY of STATE for INDIA.

My Lord,

In forwarding copy of our Proceedings, No. 123 I., dated 14th February 1891, embodying notes of inspection of the Periyár project works by the Chief Engineer, Public Works Department, we have the honor to invite your Lordship's attention to the remarks in para. 15 regarding a defect in the boiler of the steam launch sent out for the project by the India Store Department.

We have the honor to be,

My Lord,

Your Lordship's most obedient, humble servants,

(Signed) WENLOCK.

(„) C. G. ARBUTHNOT.

(„) H. E. STOKES.

(„) J. H. GARSTIN.

(True Copy.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D

Fort St. George,
14th February 1891.

GOVT. OF MADRAS.

PUBLIC WORKS DEPARTMENT.

(Copy.)

LETTER to the Right Honorable the Secretary of State for India.

No. $\frac{3}{123\ I.}$, dated 14th Feb. 1891.

Periyar Project Works

Forwarding the notes of inspection of the — by the Chief Engineer, Public Works Department.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—the following papers :—

Proceedings of the Madras Government, Revenue Department, dated 2nd February 1891, No. 66.

No. 21 I.

Note by the Chief Engineer for Irrigation.

With reference to the proposals made by the Collector of North Arcot in para. 9 of his letter No. 268, dated 18th January 1891, the following remarks are made :—

(*a*) The irrigation works in Wandiwash and Arcot taluks, which the Collector proposes should be handed over to this department for repairs, are all small ones and they are, therefore, not considered suitable for execution by departmental labor as relief works. In view of the fact that other more suitable works are available the transfer proposed by the Collector does not appear necessary.

(*b*) The Superintending Engineer, IV Circle, has already, in this office No. $\frac{IV}{14 N.A.}$, dated 2nd February 1891, been instructed to reserve the work of widening the Cheyár main channel for a relief work if necessary. The earthwork is estimated to cost Rs. 75,000 and the Superintending Engineer considers that it will provide employment for 5,000 men for six months. He has applied for Rs. 4,000 for expenditure on it during the current year.

(*c*) In connection with the southern section of the Pálár anicut system, the revised estimates for which were sanctioned in G.O., No. 278 I., dated 17th May 1890, there is an item, amounting to Rs. 28,550, for cutting and embanking the Kukundi branch channel, the greater portion of which can be carried out departmentally. An estimate has also been sanctioned in G.O., No. 315 I., dated 4th June 1890, for Random tank of the same system, the earthwork of which, amounting to Rs. 8,400, can also be used as a relief work.

2. No report having been called for by Government on clauses (*d*) and (*e*) of the Collector's proposals, it is considered unnecessary to touch on these points.

Chepâk,
9th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

Order—dated 14th February 1891, No. 127 I., Public Works.

The Government concurs in the opinions expressed in para. 1 of the foregoing note.

2. The widening of the Cheyár main channel should be put in hand at once, estimates being submitted as soon as practicable. The sum applied for by the Superintending Engineer for expenditure during the current year can be increased if necessary.

3. The Superintending Engineer should be instructed to put in hand departmentally the works in the Pálár anicut system referred to by the Chief Engineer for Irrigation and to submit an application for any increase of allotment which he may find necessary.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, IV Circle, with two lists in original.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 14th.

Recd. *Encl.*

G.O., 14th Feb. 1891, No. 127 I.

FEBRUARY.

Relief Works in the North Arcot District

Directing the Superintending Engineer, IV Circle, to carry out certain — departmentally and to apply for further allotments for the works if necessary.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From Lieut.-Colonel R. R. E. DRAKE-BROCKMAN, R.E., Superintending Engineer, IV Circle, to the Chief Engineer for Irrigation, dated Coimbatore, 5th February 1891, No. 27 E.I.

Adverting to your memo. No. IV/14 N.A. of 2nd current, requesting that none of the work of widening the Cheyár main channel may be given out on *contract* at present and that it may be found necessary to use it as a famine relief work, I have the honor to state that much of the work is rock and consists of hard gravel and is therefore unfitted for famine labor.

2. In these circumstances it will be necessary to carry out the work either departmentally or on piece work. I therefore request you will be good enough to allot at once Rs. 4,000 for expenditure during the current year.

No. 22 I.

Submitted to Government.

2. A sum of Rs. 4,000 required for expenditure on this work may be appropriated by transfer from the grants for the Nellore and Kistna Eastern divisions under Irrigation and Navigation Works for which neither Capital nor Revenue accounts are kept as shown in the margin, the Superintending Engineer, II Circle, having surrendered the amounts.

	Minor original works.	Repairs.
	RS.	RS.
Nellore division	...	2,000
Kistna Eastern division	1,000	1,000

CHEPÂK,
10th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department,
Irrigation Branch.

ORDER—dated 14th February 1891, No. 128 I., Public Works.

The widening of the Cheyár main channel in the North Arcot division will be carried out departmentally as long as the present necessity for affording work to the available labor exists.

2. The reappropriation of funds recommended by the Chief Engineer for Irrigation is sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, II Circle.
„ „ „ IV „
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 14th.

Recd. *Encl.*

G.O., 14th Feb. 1891, No. 128 I.

FEBRUARY.

Cheyar Main Channel

Allotting Rs. 4,000 for widening the — in the North Arcot division and directing to carry out the work departmentally.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From J. HANNAN, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezváda, 31st January 1891, No. 590 N.L.

In forwarding, herewith, completion report No. 117-1 of 19th January 1891, received duly verified from the Examiner of Public Works Accounts, Madras, for Ulavapalla branch channel, excavation and banking, estimate Rs. 24,000, I have the honor to request you will be good enough to obtain sanction of Government for the excess outlay of Rs. 354 over the sanctioned estimate, which is trifling, being only about 1½ per cent. and which can be met from the balance of the Sangam anicut system for unforeseen works.

ORDER—dated 16th February 1891, No. 129 I., Public Works.

The Examiner of Public Works Accounts is authorized to pass the expenditure incurred on the work referred to in the foregoing letter from the Superintending Engineer, II Circle, the excess outlay of Rs. 354 being met from the balance of the amount reserved for unforeseen works of the Sangam anicut project, which will then be reduced to Rs. 17,774.

2. This sanction has been registered as No. 136 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle, with one enclosure.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 16th.

Recd. *Encl.*

G.O., 16th Feb. 1891, No. 129 I.

FEBRUARY.

Ulavapalla Branch Channel

The Examiner, Public Works Accounts, authorized to pass the excess expenditure incurred on the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers:—

From J. HANNAN, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezváda, 19th January 1891, No. 257 B.C.

I have the honor to forward, herewith, the completion report for constructing flood gate south side of Chintamony backwater, estimate Rs. 18,625, sanctioned in G.O., No. 96 I., of 6th February 1888, and to request that sanction of Government may be obtained for the excess outlay of Rs. 1,337, which can be met from the balance of unforeseen works of Buckingham canal division.

2. The causes of excess for several items of the estimate are explained in letter No. A., of 23rd December 1890, from the Executive Engineer, Buckingham canal division, copy herein enclosed.

3. The principal items of excess are "soorkee concrete" and "wood work to gate;" the excess in the former is partly due to the insufficiency of rates and partly to the whole of the work having been done with soorkee instead of cement, the excess in gate is due to a muster similar to the one for Pennér north bank (*vide* G.O., No. 605 I., of 24th October 1890) having been adopted.

4. The saving on Jerra wood grills is probably due to the same reason as that given for Pennér north bank flood gate (*vide* also Government Order above quoted).

Office note to the Examiner of Public Works Accounts, dated 23th January 1891, No. 23.
„ from the „ „ „ „ „ 30th „ „ „ 636.

ORDER—dated 16th February 1891, No. 130 I., Public Works.

The Examiner of Public Works Accounts is authorized to admit the outlay incurred in constructing the flood gate south side of Chintamony backwater, the excess outlay of Rs. 1,337 being met from the balance of the amount reserved for unforeseen works of the Buckingham canal, which will then be reduced to Rupees 1,08,356.

2. This sanction has been registered as No. 137 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, II Circle, with four enclosures.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 16*th*.

Recd. *Encl.*

G.O., 16th Feb. 1891, No. 130 I.

FEBRUARY.

Flood Gate

The Examiner, Public Works Accounts, authorized to pass the expenditure incurred in constructing the —, south side of Chintamony backwater.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From J. HANNAN, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezváda, 21st January 1891, No. 2566 K.S.

I have the honor to forward, herewith, a completion report No. 316, dated 5th January 1891, received from the Examiner of Public Works Accounts, Madras, for constructing bridge on Vadlamannad affluent.

2. The original estimate, sanctioned in G.O., No. 179 I., of 26th February 1883, amounts to Rs. 9,520 and the total outlay is Rs. 9,646 ; the excess is, therefore, Rs. 126, which is trifling and can be met from the balance for unforeseen works of the Kistna delta system.

3. Explanations for savings and excesses are given in the completion report, the principal excess being on baling, which was found necessary during the prolonged period the work was carried out.

Office-note to the Examiner, Public Works Accounts, dated 29th January 1891, No. 28.
" from the " " " " 5th February " " 763.

ORDER—dated 16th February 1891, No. 132 I., Public Works.

The Examiner of Public Works Accounts is authorized to admit the expenditure incurred in constructing the bridge on the Vadlamannad affluent of the Lazzabunda drain, Kistna Eastern delta, the excess outlay of Rs. 126 being met from the balance of the lump sum provision available for unforeseen works of the Kistna delta system, which will then be reduced to Rs. 3,07,582.

2. This sanction has been registered as No. 138 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, II Circle, with one enclosure.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.
PUBLIC WORKS.

Dated February, 16*th.*

Recd. *Encl.*

G.O., 16th Feb. 1891, No. 132 I.

FEBRUARY.

Bridge

The Examiner, Public Works Accounts, authorized to admit the expenditure incurred in constructing the — on the Vadlamannad affluent, Kistna Eastern division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Russellkonda, 25th January 1891, No. 31 C.

I have the honor to submit, herewith, three completion reports for the following works for your perusal and return and to request that you will be so good as to obtain the sanction of Government, authorizing the Examiner to pass the excess outlay over the estimates of these works as shown below :—

——	Amount of estimate.	Expenditure.	Excess outlay.	Explanation as to the cause of excess.
35. CONSTRUCTION OF PROTECTIVE IRRIGATION WORKS.	RS.	RS.	RS.	
RUSHIKULYA PROJECT.				
No. 1 under-tunnel, Rushikulya canal.	6,790	6,898	108	The excess was partly due to insufficient provision made in the estimate for excavating foundations, centerings and partly due to repairs of flood damages.
No. 2 bridge on Rushikulya canal.	6,150	6,386	236	Some Portland cement blocks which were experimentally prepared for use on this work having been found unsuccessful on account of bad cement, its value was written off against the work; hence the excess outlay.
49. IRRIGATION.				
GODAVARI DELTA PROJECT.				
Capital expenditure on Irrigation works not charged against Revenue.				
Construction of steam tug *John Mullins.*	31,000	31,054	54	The excess being small it does not call for any explanation.

2. The excess outlay on the above works is to be met from the lump sum provision made for unforeseen works in the project estimates concerned.

ORDER—dated 16th February 1891, No. 133 I., Public Works.

The Examiner of Public Works Accounts is authorized to admit the expenditure incurred on the work referred to in the foregoing letter from the Superintending Engineer, I Circle, the excess outlay, aggregating Rs. 344, on the under-tunnel No. 1 and bridge No. 2 on the Rushikulya canal being met from the balance of the amount reserved for unforeseen works of the Rushikulya project, which will then be reduced to Rs. 20,593.

2. This sanction has been registered as No. 139 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle, with three enclosures.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 16th.

Recd. *Encl.*

G.O., 16th Feb. 1891, No. 133 I.

FEBRUARY.

Rushikulya Project

The Examiner, Public Works Accounts, authorized to pass the expenditure incurred on certain works in the —.

OVERNMENT OF MADRAS.

WORKS DEPARTMENT.

Irrigation.
Account.

STATEMENT of traffic on the navigable canals for the half-year ended on 30th September 1890.

Nature of cargo.	HALF-YEAR ENDED ON 30TH SEPTEMBER 1890.								HALF-YEAR ENDED ON 30TH SEPTEMBER 1889.							
	Tolls and license fees.	Laden boats.	Tonnage.	Ton mileage.	Value of goods.	Number of			Tolls and license fees.	Laden boats.	Tonnage.	Ton mileage.	Value of goods.	Number of		
						Empty boats.	Passenger boats.	Passengers						Empty boats.	Passenger boats.	Passengers
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
grains, salt, oil-seeds, nuts and hemp, fuel, rafts (timber and oos), turmeric, jaggery and , tamarind, fish (salt and dry), miscellaneous.	RS. ..	449	3,338	26,700	RS. 2,13,155	416	11	261	RS. ..	1,361	2,400	19,200	RS. 4,81,393	1,312	18	438
rains, salt, oil-seeds, nuts and hemp, building materials, fuel, co, turmeric, jaggery and sugar, rind, fruits and vegetables, coco-, fish (salt and dry), piece-goods, and hides, horns and miscellane-	68	370	790	1,450	64,634	43	15	75	58	336	1,023	2,137	61,875	38	9	64
l-grains, salt, cotton, oil-seeds, ts and oil, hemp, building terials, fuel, rafts (timber and nboos), tobacco, indigo, turmeric, gery and sugar, tamarind, its and vegetables, and coco- ts, fish (salt and dry), skins and es, horns, treasure and miscella- ous.	45,555	321 1,899 371 395 272 33	4,770 38,563 4,093 11,496 3,279 308	97,623 950,591 145,144 129,490 75,440 616	83,824 45,36,347 4,47,703 2,25,812 1,27,358 13,630	291 1,548 274 700 348 68	441 3,535 229 828 403 ..	4,162 39,007 394 8,992 3,693 ..	46,623	295 2,296 333 230 317 35	3,664 40,139 4,043 8,530 4,130 438	103,399 1,476,866 144,175 98,263 83,179 876	61,694 46,17,542 2,50,133 1,15,250 2,92,568 17,520	314 1,905 256 594 390 65	445 3,406 143 330 529 ..	3,404 35,723 306 4,822 4,667 ..
Total ..	45,555	3,291	62,509	1,398,904	54,34,674	3,229	5,436	56,248	46,623	3,506	60,944	1,906,758	53,54,707	3,524	4,853	48,922
Do. do. do. ..	2,187	347 140 125	5,355 1,915 2,968	140,074 49,637 79,412	4,41,128 95,704 2,03,318	282 109 108	339 170 804	3,072 1,318 7,497	2,057	259 262 262	6,794 3,511 7,627	152,080 69,940 154,717	1,29,402 1,70,124 1,46,350	242 223 155	399 254 925	3,804 2,274 17,887
Total ..	2,187	612	10,238	269,123	7,40,150	499	1,313	11,887	2,057	783	17,932	376,737	4,45,876	620	1,578	23,965
Do. do. do. ..	16,478	110 109 699 1,890 60 288 224	2,266 3,217 10,255 27,997 1,383 4,175 6,296	67,777 59,605 353,940 1,138,975 17,975 157,535 68,697	87,659 79,165 5,09,212 25,86,366 65,465 3,50,845 2,25,679	129 154 582 1,005 47 174 230	139 76 950 1,508 269 53 519	991 425 13,817 29,390 2,896 257 5,089	16,693	168 168 766 1,403 111 670 220	3,468 2,837 11,350 23,245 1,949 11,087 5,827	145,754 58,131 397,857 929,171 26,916 309,825 81,969	61,556 72,228 9,00,655 18,14,614 91,495 19,44,333 2,05,697	231 217 694 1,112 61 155 195	243 38 1,111 1,274 418 49 468	1,600 265 13,686 33,199 3,773 298 3,953
Total ..	16,478	3,380	55,589	1,864,504	39,04,391	2,321	3,514	52,865	16,693	3,506	59,763	1,949,623	50,90,578	2,665	3,601	56,774
Total, Godávari Delta ..	64,220	7,283	128,336	3,532,531	1,00,79,215	6,049	10,263	121,000	65,373	7,795	138,639	4,233,118	1,08,91,161	6,809	10,032	129,661
-grains, salt, cotton, oil-seeds, s and oil, hemp, building mate- s, fuel, timber, bamboos, piece- ds, metal, tobacco, indigo, fish t and dry), leather (skins and es), shells, turmeric, jaggery sugar, tamarind, fruits and etables, horns, treasure and cellaneous.	14,563	632 1,582 834 493 30	16,035 27,129 6,610 5,458 292	1,002,404 1,774,530 48,568 63,745 1,939	18,07,898 34,86,006 5,30,756 5,22,082 11,765	414 464 339 246 30	2,191 2,060 54 191 19	34,736 27,991 157 215 9	12,485	576 793 800 707 4	12,625 19,052 9,421 9,634 92	967,084 1,191,777 76,458 109,208 1,377	15,12,896 13,39,120 15,87,209 16,86,225 917	222 373 163 161 6	1,564 1,443 46 81 ..	33,451 14,756 55 66 ..
Total ..	14,563	3,571	55,524	2,891,186	63,58,507	1,493	4,515	63,108	12,485	2,880	50,824	2,345,904	61,26,367	925	3,134	48,328
Do. do. do. ..	2,807	319 1,159 254	2,721 15,072 3,316	127,981 1,248,578 118,942	1,69,902 18,29,489 1,44,846	291 538 298	93 1,031 414	104 3,583 4,073	2,951	246 865 212	1,918 11,056 2,524	84,935 896,752 94,333	78,631 20,66,881 1,14,773	242 601 193	43 859 407	111 3,722 3,269
Total ..	2,807	1,732	21,109	1,495,501	21,44,237	1,127	1,538	7,760	2,951	1,322	15,498	1,076,020	22,60,285	1,036	1,309	7,102
Total, Kistna Delta ..	17,370	5,303	76,633	4,386,687	85,02,744	2,620	6,053	70,868	15,436	4,202	66,322	3,421,924	83,86,652	1,961	4,443	55,430
rains, salt, oil-seeds, nuts and uilding materials, fuel, timber, oos, metals, tobacco, fish (salt lry), leather (skins and hides), , jaggery and sugar, fruits and ables, cocoanuts, horns, trea- nd miscellaneous.	65,344	2,466	13,960	532,154	10,60,928	1,836	95	587	60,928	4,888	37,491	1,034,832	16,81,155	4,425	90	491
rains, salt, oil-seeds, nuts and uilding materials, fuel, timber, oos, metals, tobacco, fish (salt lry), leather (skins and hides), , jaggery and sugar, fruits and ables, cocoanuts, horns, trea- and miscellaneous, cotton, piece-goods, indigo, turmeric amarind.		7,156	82,788	7,761,352	59,66,044	4,279	1,274	19,836		11,036	115,187	6,603,558	88,70,240	5,661	1,205	20,473
Total ..	65,344	9,622	96,748	8,293,506	70,26,972	6,115	1,369	20,423	60,928	15,924	152,678	7,368,390	1,05,51,395	10,086	1,295	20,964
rains, salt, cotton, oil-seeds, ng materials, fuel, timber and llaneous.	..	88	689	60,765	1,30,202	4	1	..	..	193	1,794	154,239	2,43,960	46	2	18
entirely salt, but some ground- firewood and cocoanut leaves.	1,170	608	6,079	182,370	4,56,573	146	6	..	617	564	5,647	170,410	4,19,825	128	5	..
Grand Total ..	1,48,172	23,723	312,613	16,474,009	2,64,73,495	15,753	17,718	212,627	1,42,412	30,375	368,503	15,639,418	3,10,36,261	20,380	15,804	206,575

* The entries in column 11 have been verified by the Examiner of Public Works Accounts and supersede those in column 3 of the statement printed with G.O., No. 209 I., of 28th March 1890.

(Sig

ORDER—dated 16th February 1891, No. 134 I., Public Works.

Ordered that the above statement be forwarded to the Government of India.

(Here enter No. 135 I., dated 16th February 1891.)

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle.
" " " II "
" " " III "
" " " V "
" Examiner, Public Works Accounts.
" Revenue Department.

ENDORSEMENT—dated 16th February 1891, No. 135 I., Public Works.

Forwarded.

(By Order.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 16th.

Recd. *Encl.*

G.O., 16th Feb. 1891, Nos. 134 I., 135 I.

FEBRUARY.

Traffic on Navigable Canals

Forwarding the — for the half-year ended on 30th September 1890.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 9th February 1891, No. 42.

As requested by the Executive Engineer, Negapatam division, in his letter No. 303, dated 5th instant, I have the honor to request that a transfer of Rs. 1,000 from 42. Major works, extension and improvement, minor, to Agricultural repairs river embankment, may be made if possible. The Executive Engineer reports that the existing grant under the latter head is quite insufficient to meet the expenditure on works in progress.

No. 25 I.

Submitted to Government.

2. No transfers of funds are permissible from 42. Major works (Working expenses) to Agricultural works. Rs. 1,000 surrendered from the grant under the former may be appropriated to the Barur tank project in the Coimbatore division, for which the Superintending Engineer, IV Circle, has applied for Rs. 3,960 for extensions and improvements. To meet the demand of Rs. 1,000 required for repairs to river embankments in the Negapatam division, the allotments for the following works may be reduced, the Superintending Engineer, II Circle, having reported that the allotments for these works cannot be fully utilized :—

Nellore division.	Extensions grant.	Amount of reduction.
	RS.	RS.
Chagole tank	675	500
Pedda Puttedu tank, improving	5,200	500

CHEPÂK,
12th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

ORDER—dated 16th February 1891, No. 136 I., Public Works.

The following transfers of funds are sanctioned :—

Imperial.
42. Major Works (Working Expenses).

From	RS.	To	RS.
Cauvery delta, Negapatam division—		Barúr tank project, Coimbatore division—	
Extensions and improvements ...	1,000	Extensions and improvements ...	1,000
Establishment	230	Establishment	230
Total ...	1,230	Total ...	1,230

Provincial.

43. Minor Works and Navigation.

From Irrigation and Navigation. Works for which neither Capital nor Revenue Accounts are kept. Original Works.	RS.	*To* Agricultural Works. Repairs. River Embankments.	RS.
Nellore division—		Negapatam division	1,000
Chagole tank improvements ...	500	Establishment	230
Pedda Puttedu tank improvements.	500	Tools and plant	15
	1,000		
Establishment	230		
Tools and plant	15		
Total ...	1,245	Total ...	1,245

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, II Circle.
,, ,, ,, IV ,,
,, ,, ,, V ,,
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 16th.

Recd. *Encl.*

G.O., 16th Feb. 1891, No. 136 I.

FEBRUARY.

Transfers of Funds

Sanctioning certain —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From the Executive Engineer, Godávari Western division, to the Superintending Engineer, I Circle, dated 7th January 1891, No. 461.

I have the honor to inquire whether the sum of Rs. 3,000 ordered to be surrendered by this division under Tank Restoration Scheme in para. 5 of G.O., No. 753 I., dated 15th December 1890, is identical with that surrendered and kept in reserve in para. 3 of G.O., No. 581 I., dated 16th October 1890, or is over and above that sum.

2. I inquire because works to the full amount of allotment, as it stood in G.O., No. 581 I., are now in full swing, and, if it is a further reduction that has been ordered, I will simply have to arrange to make part payments on all instead of fully paying up any before the end of the official year.

Endorsement by the Superintending Engineer, I Circle, dated 19th January 1891, No. 1962 G.D.

Copy submitted to the Chief Engineer for Irrigation, who is requested to be good enough to favor the undersigned with the information asked for by the Executive Engineer.

Telegram from the Chief Engineer for Irrigation, to the Superintending Engineer, I Circle, dated 27th January 1891, No. 6.

Your No. 1962 G.D., 19th instant. Surrenders in G.O., No. 753 I., are in addition to those in G.O., 581 I. Existing grants 2,000 original works, 6,000 repairs. Wire if additional funds are required. Rs. 4,100 available.

Telegram from the Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 10th February 1891, No. 161.

Your telegram No. 6. Additional funds Rs. 1,000 on original works 2,000 on repairs can be spent.

No. 24 I.

Submitted to Government, with the recommendation, that the amounts applied for may be appropriated from the reserve of Rs. 4,100 for Tank Restoration works, viz., Rs. 2,100 under original works and Rs. 2,000 under repairs.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

CHEPÂK,
12th February 1891.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

ORDER—dated 16th February 1891, No. 138 I., Public Works.

The additional allotments applied for for expenditure on Tank Restoration works in the Godávari Western division during the current year, aggregating Rs. 3,000, are appropriated from the reserve for expenditure on Tank Restoration works. The balance of the reserve still available is Rs. 1,100 under original works.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 16*th*.

Recd. *Encl.*

G O., 16th Feb. 1891, No. 138 I.

FEBRUARY.

Tank Restoration Works, Godavari Western Division

Allotting Rs. 3,000 for expenditure during current year on —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

From C. VINCENT, Esq., Under-Secretary to the Government of India, Public Works Department (Civil Works—Irrigation), to the Secretary to the Government of Madras, Public Works Department, dated Calcutta, 12th January 1891, No. 5 I.

I am directed to acknowledge the receipt of your letter No. 732 I., dated the 8th December 1890, and, under the explanation afforded, to communicate the formal approval of the Government of India to the schedules of works to be executed on the Godávari Delta system, which were submitted with your letter No. 429 I., dated 11th August 1890, and provisionally approved in Public Works Department telegram No. W. 62 of the 13th September 1890.

2. I am, however, to request that the Government of India may be furnished with a report, showing the probable results of the project when completed, including the works provided for in the schedules formally sanctioned in para. 1 of this letter. The report should be accompanied by a table, showing actuals as compared with the forecast of revenue and working expenses, which formed an accompaniment to the last estimate, to which sanction was accorded by the Secretary of State in despatch No. 42 P.W., dated the 17th August 1882, a copy of which was furnished to the Government of Madras with Public Works Department letter No. 356 I., dated the 27th September 1882. The index map referred to in para. 3 of your letter under reply should be furnished at the same time.

ORDER—dated 17th February 1891, No. 139 I., Public Works.

Communicated to the officers concerned for information.

2. The Chief Engineer for Irrigation will submit, as soon as possible, the report and the index map referred to in para. 2 of the foregoing letter from the Government of India.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 17th.

Recd. *Encl.*

G.O., 17th Feb. 1891, No. 139 I.

FEBRUARY.

Godavari Delta System

Letter from the Government of India communicating approval to the schedules of works to be executed on the — and requesting to be furnished with a report of the probable results of the project when completed and an index map, communicated to the Chief Engineer for Irrigation for information and for the submission of the report, &c.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation in charge Tank Restoration Scheme, dated Chepâk, 12th February 1891, No. 47 E.I.

With reference to the last para. of G.O., No. 188 W., dated 21st January 1891, I have the honor to submit, for sanction, an estimate of Rs. 2,756 for 2 surveyors and 12 lascars to be employed on Tank Restoration operations in Ponnéri and Tiruvallúr taluks in Chingleput division.

ORDER—dated 17th February 1891, No. 140 I., Public Works.

	RS.
Two surveyors for 13 months from 1st February 1891 to 29th February 1892 at Rs. 70 each per mensem ...	1,820
Twelve lascars for the same period at Rs. 6 each per mensem	936
Total estimate ...	2,756

The estimate, amounting to Rs. 2,756, for the marginally-noted work establishment, is sanctioned.

2. This sanction has been registered as No. 140 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, V Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 17th.

Recd. *Encl.*

G.O., 17th Feb. 1891, No. 140 I.

FEBRUARY.

Establishment

Estimate of Rs. 2,756 for 2 surveyors and 12 lascars for 13 months for Tank Restoration operations in the Chingleput division sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 8th January 1891, No. 5 E.I.

I have the honor to submit, for sanction, a plan and estimate of Rs. 5,820 for reconstructing the Mariamman sluice of Uttramalloor tank in Chingleput district.

2. The necessity for the reconstruction of the sluice is fully explained in the report accompanying the estimate.

Enclosure.

Report to accompany estimate and plan for reconstructing Mariamman sluice in Uttaranmerur upper or large tank, estimate amount Rs. 5,820.

The existing sluice is of very old pattern extending a considerable distance into the bed, with a body possessing a very imperfect and faulty waterway, which during the past three years has twice failed by becoming blocked. These failures in the waterway are seldom known of till just before the monsoon sets in, leaving but little time to remedy the evil. The failures that have hitherto occurred have been in the portion of body below the front berm where even a considerable depth of excavation has to be made to get down to the body. Should such failure at any time occur in the body under top of bund the required excavation would be more than doubled in depth besides risking a breach. Probably time would not suffice to do this sufficiently effective to save the 529 acres dependent on it and thereby would occur a considerable loss of revenue as well as much loss to the ryots. Hence to avoid such a catastrophe it is proposed to reconstruct the sluice with shorter body and capable of being seen to from its rear as regards larger capacity to permit of access therein.

The sluice in rear has a leading wall on its left outfall bank of nearly 80 feet length; hence existing design in rear has been adhered to in this with the addition of a return to the left side wall to suit site.

The rates in this are similar to those entered for Pulwoy sluice of same tank. The data which accompanied that is referred to; hence none is forwarded with this.

The instructions regarding foundation being of one uniform depth have been adhered to although revision in this respect was directed by the Superintending Engineer in the case of Kattupakkam and Pulwoy sluice of same tank.

Drawings on a larger scale, with details of screw gearing, shutters, &c., are given on the plan. A tracing of such should be sent to the Presidency Workshop to obtain their estimate for same and such should be added to the estimate herewith submitted; the total will be the amount requiring sanction.

A private firm will be preferable.
29th October 1890. (Intld.) C.H.B.B.

Work to be carried out in accordance with paragraphs of standard specification referring thereto.

(Signed) J. B. SANDERSON,
Sub-Divisional officer.

23rd October 1890.

(Signed) C. H. B. BURLTON,
Executive Engineer, Chingleput division.

No. 23 I.

Submitted to Government. The design for the sluice has been modified in this office and the amount of the estimate reduced from Rs. 6,210 to Rs. 5,820.

CHEPÂK,
10th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department,
Irrigation Branch.

ORDER—dated 17th February 1891, No. 144 I., Public Works.

The following estimate is sanctioned:—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation.
Works for which neither Capital nor Revenue Accounts are kept.
Chingleput Division.
Original Works.
Reconstructing Mariamman sluice of Uttaranmerur (Uttramalloor) tank

	RS.
No. 537 of list of "Imperial" works, estimate	5,820

2. This sanction has been registered as No. 141 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle, with six enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.
" Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 17th.

Recd. *Encl.*

G.O., 17th Feb. 1891, No. 144 I.

FEBRUARY.

Uttaranmerur (Uttramalloor) Tank

Estimate of Rs. 5,820 for reconstructing Mariamman sluice of —, Chingleput division, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers :—

G.O., dated 12th February 1891, No. 95, Revenue.

Read—the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 4th February 1891, No. 60 :—

MR. CLOGSTOUN.

Read—the following letter from W. J. H. LE FANU, Esq., Collector of North Arcot, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated 30th January 1891, Ref. on Gl. Ver. No. 193 :—

In forwarding, herewith, in original (to be returned), the Wandiwash Tahsildar's arzi, No. 11, dated 14th January 1891, with its enclosures, I have the honor to invite the attention of the Board to paragraph 4 of the same, from which it will be seen that in 5 out of 32 villages in which the Tahsildar has made inquiries regarding the condition of the people, distress is already so severely felt that people have commenced to live on the seeds of certain grasses, &c., which were resorted as food only during the late famine. It is probable that a similar state of things is to be found in other parts of the taluk also where the Tahsildar is continuing his inquiries, and a further report will be submitted on receipt of information from the Tahsildar. The Tahsildar considers that about 200 persons, as per statement No. 4, are now destitute of any means of subsistence and must starve unless work is provided for them immediately. As the Tahsildar calculates that the three works mentioned by him will afford employment for these men for three months, I have issued orders for putting them in hand at once and have addressed the Land Revenue Commissioners for approval of my action. Besides the 200 people who will find relief in the above works, it is reported that there are some old and infirm people and children who cannot work, but who, the Tahsildar expects, can be supported from the wages of those employed on the above works. The Tahsildar has been directed to watch and report how far his expectations are fulfilled.

2. The new General Duty Deputy Collector, Lakshmana Rao Garu, an experienced famine officer, will shortly be on the spot, and I would recommend that he be vested with discretion to admit to money-dole the very old who may be utterly destitute and also to establish kitchens for children when necessary in this taluk only. It is further, I think, absolutely necessary that we should have a famine officer in the taluk. Inspection of distressed villages must be made and the works sanctioned must be carried out departmentally. The General Duty Deputy Collector, who will not be relieved of his ordinary work, cannot be everywhere, and, with the census and jamabandi on his hands, the Tahsildar cannot attend to inspection and works without serious detriment to his other duties. I would therefore suggest that the present Tahsildar, who is young and active, be put on special duty for inspection and management of relief works, and that I should be permitted to detail another officer to act for him. My English head clerk, who in the last 3 years has obtained a thorough

insight into taluk and village accounts, could be best spared for the purpose. He has passed all the tests except "Criminal," but has lately appeared for that also and will probably pass. In any case he might be exempted as was often done in the late famine. He is quite fit to be a Magistrate

3. I have for the immediate exigency detailed the Tank Inspectors of non-affected taluks to work in Wandiwash and Pólúr on minor irrigation works to be carried out departmentally. They will be wanted back in their own taluks in April. I request permission to employ a temporary establishment for supervision of works and daily payments. It is probable that there may be some loss by departmental supervision. I must ask the Board to give me a free hand here as we cannot make an omelet without breaking eggs, and departmental work in such a crisis cannot be as cheap as contract work. I would ask that the Executive Engineer be instructed to arrange to receive and employ coolies departmentally in this taluk and that his hands be strengthened to this end. I have already alluded more than once to the necessity for the latter, but I do not think that any orders have been issued. Major Rawson tells me demi-officially that the widening of the Cheyár channel could not be wholly counted on as a relief work, as most of the work to be done lies in rock and blasting will be necessary, and in such places trained labor only could be employed. He tells me, however, that much work could be found in clearing away the islands above the Cheyár anicut and in removing the accumulated sand piled up on the channel banks, which should be thrown into the river below the anicut. These are useful works and must be done some time. They may as well be done now. If these two works were started they could employ for a long time most of the laborers that I would send. The very strongest could go to the widening of the channel and the weaker men and women to the islands and silt removal. To this end Major Rawson must (*a*) be instructed to employ labor departmentally, (*b*) must have the staff needful to that end, (*c*) must be prepared to make regular and frequent payments, (*d*) must provide light hutting for the coolies, and (*e*) must have bazaars on the spot, for which latter I would make the necessary arrangements. I request that the needful and explicit orders to the above end may be obtained. Until Major Rawson is ready to start work, which will take some time, I must see that the people when needful are employed and I trust that the assumption of the necessary responsibility on my part may be approved. There is no need for any scare and the cost will not relatively be much, but we must act promptly, and, with so experienced an officer as Lakshmana Rao on the spot, Government may depend upon expenditure being as much as possible minimised. The great lesson of 1877 is that we must *begin in time*. If I waited until my hands were forced by the actual pressure of starvation, and in isolated parts we are not far off this now, irreparable damage would be done.

Resolution—dated 4th February 1891, No. 60.

Submitted for the information of Government.

2. The Board fully approves of Mr. LeFanu's action in ordering the immediate execution of some minor irrigation repair works in order to afford relief to distressed people in five villages of the Wandiwash taluk, where the failure of crops has been very great and some 200 of the poorer classes are reported to be without any means of subsistence. Care should also be taken to see that full task is demanded from the coolies.

3. The Board learns that orders are about to issue for the commencement by the Public Works Department of the work of widening the Cheyár anicut channels. The work will be carried out departmentally and will give employment to all applicants in the taluk. It will then be unnecessary for the Collector to find employment for people in their own village and all applicants for employment should be directed to apply to the Public Works Department. It will rest with that department to see that the staff needful to enable them to carry on work departmentally and to make regular and frequent payments is duly entertained and to take measures in conjunction with the Civil authorities for hutting the coolies where no other shelter is obtainable and for the

supply of bazaars. Meantime, and until there are urgent reasons for supposing that the demand for employment will be very large, work should be commenced, if possible, in the neighbourhood of villages so as to avoid expenditure on the provision of bazaars and of hutting. The Commissioner observes that in the 32 villages, which had up to the date of this arzi been inspected by the Tahsildar, only 200 out of a total population of 21,074, or a little below 1 per cent., had been found in immediate need of employment. The Tahsildar does not state that he made his first visits to the villages that were presumably the most distressed, though it is probable that he did. Assuming, however, that they were only average villages, the number in present need of employment in the whole taluk would only be about 1,400.

4. The Board does not consider that any exceptional measures other than those described above are yet necessary to meet the present circumstances of the taluk. A very experienced Deputy Collector has at Mr. LeFanu's request been placed in charge of the division, and the Board can rely on him to bring to the immediate notice of the Collector any circumstances which show that further measures of relief are absolutely necessary.

(A true Copy and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

Read—also the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 10th February 1891, Mis. No. 639.

Mr. Clogstoun.

Read—the following letter from the Collector of North Arcot, dated 9th February 1891, No. 252.

Referring to the former part of para. 3 of the Board's Proceedings, dated 4th February 1891, No. 60, I have the honor to state that the work of widening the Cheyár anicut channels is mostly in rock and cannot be done by ordinary labor. As blasting will be necessary and as only trained men could be employed on such work, this will not afford employment to all applicants in the taluk as expected by the Board.

Resolution—dated 10th February 1891, Mis. No. 639.

Submitted for the information of Government.

2. The Commissioner proposes visiting the Wandiwash and Pólúr taluks in the course of the current week and will report, in due course, after consultation with the local officers, what other works might be started should the necessity arise.

(A true Copy and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

Order—dated 12th February 1891, No. 95, Revenue.

The Commissioner of Settlement has started on a tour of inspection in the Wandiwash and Pólúr taluks and the Government will await his report before deciding on the measures to be adopted. Meanwhile it does not appear necessary to appoint a special officer for inspection of distressed villages or to vest the General Charge Duty Deputy Collector with discretion to grant money-doles and establish kitchens.

2. As the widening of the Cheyár channel is stated not to be suited for unskilled labor, it will be considered in the Public Works Department whether work could be found for the people in removing accumulated sand, as suggested by Major Rawson. The minor irrigation works entered in the budget will suffice for the present, but it should be considered what major works, capable of employing a large number of laborers, could be started in case of necessity.

3. Temporary establishments for supervision of minor irrigation works and daily payments may be entertained whenever necessary in anticipation of sanction. This point has not been noticed by the Commissioner of Settlement because it has to be dealt with in the Land Revenue Department. To obviate delay, however, it is desirable that orders on all points brought forward in connection with the state of the season should issue in the Settlement Branch of the Board, the Land Revenue Commissioners being previously consulted and the Proceedings being passed by the Land Revenue and Settlement Commissioners jointly.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 11th February 1891, Mis. No. 641.

Mr. Clogstoun.

Read—list of major works requiring repairs in Pólúr taluk from the Collector of North Arcot, dated 7th February 1891, No. 487-Rev. Genl.

Resolution—dated 11th February 1891, Mis. No. 641.

Submitted to Government in continuation of Board's Proceedings, dated 15th January 1891, No. 19.

(A true Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

No. 1021, Revenue.

Transferred to the Public Works Department with reference to para. 2 of G.O., dated 12th February 1891, No. 95.

Fort St. George,
13th February 1891.

(Signed) C. A. GALTON,
Secretary to Government.

Order—dated 18th February 1891, No. 145 I., Public Works.

The Superintending Engineer, IV Circle, is directed to make arrangements for putting in hand by departmental labor the works of removing the silt from the banks of the Cheyár main channel and of clearing the island in front of the anicut. The works should be started at once, but the Superintending Engineer should sanction the necessary estimates as soon as they can be prepared.

2. The work of widening the Cheyár main channel should also be gone on with and only those laborers, who are found unfit for employment on it, should be employed on the lighter work at the head of the channel referred to in para 1.

3. The list of Major (" Imperial ") irrigation works requiring repairs in the Polúr taluk prepared by the Collector is forwarded to the Superintending Engineer, who should ascertain if any of the works therein proposed are suitable for relief works, and, if so, should at once have estimates for them prepared.

4. Application for any additional funds which may be required should be submitted without delay.

5. The question of providing any extra establishment necessary for the execution of the above works will be considered in the General, Roads and Buildings Branch.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, IV Circle, with one list.
" Examiner, Public Works Accounts.
" Revenue Department.
" Chief Engineer, Public Works Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 18th.

Recd. *Encl.*

G.O., 18th Feb. 1891, No. 145 I.

FEBRUARY.

Cheyar Main Channel

Passing orders regarding the removal of silt from the banks of the — and the widening of the channel and the preparation of estimates for such irrigation works as may be considered suitable for relief works in the Pólúr taluk, North Arcot district.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—the following paper :—

From J. H. A. TREMENHEERE, Esq., Acting Collector of the Chingleput District, to the Secretary to Government, Revenue Department, dated Saidápet, 18th February 1891, Ref. on No. 493-Eng.

I have the honor to submit a draft notification for acquisition of land in the taluk of Ponnéri in connection with the Arni river diversion work now being executed by the Department of Public Works departmentally so as to give work to the laboring classes in that portion of the district. As the matter is urgent, I request that the notification may be approved by Government and published in the next issue of the *Fort St. George Gazette.*

Mis. No. 1145, Revenue.

Transferred to the Public Works Department.

Fort St. George.
18th February 1891.

(Signed) C. A. GALTON,
Secretary to Government.

Order—dated 19th February 1891, No. 156 I., Public Works.

Ordered that the notification be published in the *Fort St. George Gazette.*

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, V Circle.
„ Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 19th.

Recd. *Encl.*

G.O., 19th Feb. 1891, No. 156 I.

FEBRUARY.

Land

Ordered that the notification for the acquisition of — in the Ponnéri taluk in connection with the Arni river diversion work be published in the *Fort St. George Gazette.*

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

Telegram from the Secretary to the Government of India, Public Works Department, to the Joint Secretary to the Government of Madras, Public Works Department, Irrigation Branch, dated Calcutta, 13th February 1891, No. A. 81.

Yours 10th. Additional five thousand sanctioned for Rushikulya.

ORDER—dated 19th February 1891, No. 159 I., Public Works.

Communicated to the Superintending Engineer, I Circle, for information and guidance. The amount of Rs. 5,000 now sanctioned is distributed as shown below :—

	RS.
Works	4,065
Establishment	935
Total ...	5,000

The Superintending Engineer will report the work or works on which the sum of Rs. 4,065 can be utilized. The following deferred telegram will be sent to the Superintending Engineer, I Circle :—

"Your telegram 157, ninth instant. India sanctioned additional grant Rs. 5,000 for Rushikulya."

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 19th.

Recd. *Encl.*

G.O., 19th Feb. 1891, No. 159 I.

FEBRUARY.

Rushikulya Project.

Telegram from the Government of India, sanctioning an additional grant of Rs. 5,000 for the —, communicated to the Superintending Engineer, I Circle, with remarks.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 11th February 1891, No. 1044 T.N.

I have the honor to request that the following modification of allotments in the Tinnevelly division may be sanctioned at an early date :—

Item number.	——	Existing grant.	Modification of allotment applied for.		Modification of allotment proposed.	
			Reduction.	Increase.	Reduction.	Increase.
	PROVINCIAL IRRIGATION.	RS.	RS.	RS.	RS.	RS.
	43. MINOR WORKS AND NAVIGATION.					
	Works for which neither Capital nor Revenue accounts are kept.					
	Minor works.					
1	Lump sum grant	18,000	..	500	..	500
	Repairs.					
2	Lump sum grant	31,000	1,500	..	1,500	..
	Tank Restoration Scheme.					
	Minor works.					
3	Lump sum grant	10,000	3,000	..	3,000	..
	Repairs.					
4	Lump sum grant	8,422	..	4,000	..	4,000
	Total ..	..	4,500	4,500	4,500	4,500

2. *Item* 1.—The existing grant is insufficient.

Items 2 *and* 3.—It is reported that works under these heads cannot be carried out as anticipated. Portions of grants are therefore surrendered.

Item 4.—The existing grant has already been exceeded by Rs. 2,265, as several urgent works, such as closing breaches have been carried out; hence the necessity for an increase of allotment.

ORDER—dated 20th February 1891, No. 160 I., Public Works.

The sum of Rs. 500 required for item 1 is appropriated from the surrender from the grant for item 2. The balance of the surrender, viz., Rs. 1,000, is appropriated to meet in part the demand for item 4. The existing grant for item 3 is only Rs. 9,000

and not Rs. 10,000 as shown by the Superintending Engineer, Rs. 1,000 having been reduced in G.O., No. 111 I., dated 9th February 1891. The grant is, therefore, reduced by only Rs. 2,000 and this sum is appropriated to meet in part the demand for item 4. There are no funds available to meet the balance of this demand. Rs. 230 required to meet the charge for establishment and Rs. 15 to meet that for tools and plant are transferred from Ordinary Irrigation works to Tank Restoration works.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 20th

Recd. *Encl.*

G.O., 20th Feb. 1891, No. 160 I.

FEBRUARY.

Modifications of allotments

Sanctioning certain — in the Tinnevelly division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

No. 26 I.

Note by the Chief Engineer for Irrigation.

The existing balance of the reserve for expenditure on Tank Restoration works is Rs. 1,100 under Original works, and this sum, it is recommended, may be appropriated to the North Arcot division to meet in part the balance of the demand referred to in G.O., No. 89 I., dated 30th January 1891.

CHEPÂK,
14th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 20th February 1891, No. 161 I., Public Works.

The appropriation recommended in the foregoing note is sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, IV Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 20th.

Recd. *Encl.*

G.O., 20th Feb. 1891, No. 161 I.

FEBRUARY.

Tank Restoration Works

Appropriating Rs. 1,100 for repairs to — in the North Arcot division.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

No. 27 I.

Note by the Chief Engineer for Irrigation.

The following surrenders and demands have been reported under Provincial, 43. Minor Works and Navigation, by the Superintending Engineers concerned :—

Irrigation and Navigation works for which neither Capital nor Revenue Accounts are kept.

	Surrender. RS.	Demand. RS.
Vizagapatam division—		
1. Repairs	...	1,500
Nellore—		
2. North Omalur tank	...	270
3 Iswara vaka tank	700	...
4. Pedda Puthedu tank	100	...
5. Dugirazapatam tank	400	...
Total ...	1,200	1,770

Agricultural works.

	Surrender. RS.	Demand. RS.
Nellore—		
River conservancy—		
6. Minor original works	600	...
Kistna Eastern—		
River conservancy—		
7. Surveying the Kistna river	...	125
Vizagapatam—		
River conservancy—		
8. Repairs	500	...
Ganjam—		
River embankments—		
9. Repairs	...	2,000
Total ...	1,100	2,125

It is recommended that, of the amount of Rs. 1,200 surrendered from items 3, 4 and 5, Rs. 270 may be appropriated to meet the demand for item 2, and the balance, viz., 930, to meet in part the demand for item 1, and, of the amount of Rs. 1,100 surrendered from items 6 and 8, Rs. 125 to meet the demand for item 7 and Rs. 975 to meet in part the demand for item 9, the Superintending Engineer, I Circle, being informed that there are no funds available to meet the balance of the demands for items 1 and 9.

CHEPÂK,
16th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 20th February 1891, No. 162 I., Public Works.

The appropriations recommended by the Chief Engineer for Irrigation in the foregoing note are sanctioned.

2. The following deferred telegram will be sent to the Superintending Engineer, I Circle:—

"Your No. 466 V.Z., second instant, and telegram 162, thirteenth instant. Additional grant Rs. 930 sanctioned for irrigation repairs Vizagapatam and Rs. 975 for river embankments repairs Ganjam. No more funds available."

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, I Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 20th.

Recd. *Encl.*

G.O., 20th Feb. 1891, No. 162 I.

FEBRUARY.

Appropriations

Certain — recommended by the Superintending Engineer, I Circle, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

Endorsement from the Superintending Engineer, III Circle, dated 18th Dec. 1890, No. 2758.
" " " " " " 7th Feb. 1891, " 3212.

Order—dated 21st February 1891, No. 166 I., Public Works.

The limit of reserve stock in the Kurnool division sanctioned in G.O., No. 239 I., dated 16th May 1889, is redistributed as shown below :—

	RS.
Small stores	800
Timber	200
Metals	1,300
Miscellaneous	200
Total ...	2,500

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, III Circle.
" Examiner, Public Works Accounts.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 21st.

Recd. *Encl.*

G.O., 21st Feb. 1891, No. 166 I.

FEBRUARY.

Reserve stock in the Kurnool Division

Redistributing the limit of —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—again the following paper :—

G.O., dated 17th February 1891, No. 141 I., Public Works.

Read—the following paper :—

Telegram from the Superintendent of Works, No. I Periyár division, to the Chief Engineer, Public Works Department, dated 16th February 1891.

70,000 rupees additional grant wanted urgently. Wire sanction.

Order—dated 17th February 1891, No. 141 I., Public Works.

The following urgent telegram will be sent to the Government of India :—

Further additional grant Rs. 70,000 wanted urgently for Periyár. Please wire sanction.

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

READ—also the following paper :—

Telegram from the Secretary to the Government of India, Public Works Department, to the Secretary to the Government of Madras, Public Works Department, dated Calcutta, 19th February 1891, No. A. 94.

Yours 17th. Additional Rs. 70,000 granted for Periyár.

ORDER—dated 23rd February 1891, No. 167 I., Public Works.

Communicated to the officers concerned for information.

2. The following deferred telegram will be sent to the Superintendent of Works, No. I Periyár division.

"Your telegram 16th instant. India sanctioned Rs. 70,000. Send distribution statement."

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer for Irrigation.
,, Superintendent of Works, No. I Periyár Division.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 167 I.

FEBRUARY.

Periyar Project

Telegram from the Government of India sanctioning an additional grant of Rupees 70,000 for the —, communicated to officers concerned for information.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers:—

From J. HANNAN, Esq., Superintending Engineer, II Circle, to the Chief Engineer for Irrigation, dated Bezváda, 7th October 1890, No. 1706 K.S.

I have the honor to forward, herewith, the marginally-noted statements of navigation receipts and charges appertaining to the Kistna delta system for the official year 1889-90.

1 Comparative statement.
1 Statement C.
1 Do. C (1).
1 Do. A.
1 Do. A (1).
1 Do. B.
1 Do. D.
—
7
—

2. Under receipts there is a decrease of Rs. 3,044 this year over the receipts of last year. As regards falling off, please see para. 2 of my letter No. 248 Gl., dated 26th August 1890.

3. Under charges the expenditure is greater than that of last year by Rupees 6,940, the main increase being under "navigation repairs, proper."

ENCLOSURES.

COMPARATIVE statement showing the charges and receipts on account of navigation in the canals of Kistna delta for 1886-87, 1887-88, 1888-89 and 1889-90.

Particulars.	Official year, 1886-87.	Official year, 1887-88.	Official year, 1888-89.	Official year, 1889-90.
Charges.	RS.	RS.	RS.	RS.
Lock establishment	10,614	10,480	10,673	10,233
Direct charges for repairs	26,434	22,962	14,557	17,456
Indirect do.	41,236	24,804	27,599	31,148
Interest on capital outlay	13,122	13,701	14,372	15,304
Total ..	91,406	71,947	67,201	74,141
Receipts.				
License fees for cargo boats	5,217	4,843	5,235	3,158
Do. for passengers boats	2,463	3,470	2,964	2,427
Do. for Government boats	2,890	3,070	3,748	3,917
Do. for staff boats	84	84	72	72
Do. for miscellaneous	182	207	307	381
Tolls on cargo boats	}			
Do. on passengers boats	} 11,344	16,457	15,170	15,472
Do. on miscellaneous	}			
Do. on rafts	1,865	2,152	2,767	1,873
Total ..	24,045	30,283	30,263	27,300
License fees for Government floating plant	..	..	135	..
Rent from staff boats	..	..	1,193	1,268
Do. paddle boat	..	..	30	9
Do. boat basin	..	..	70	66
Total ..	..	..	31,691	28,643
Add balance deficient	67,361	41,664	35,517	45,498
Grand total ..	91,406	71,947	67,208	74,141

C.—Statement showing the expenditure on repairs of navigable canals in the Kistna district for 1889-90.

—	Navigation repairs proper.					
	Lock and lock weir repairs.	Navigation buildings.	Clearing tow-paths.	Dredging.	Miscellaneous.	Total.
1	2	3	4	5	6	7
Kistna Eastern delta.	RS.	RS.	RS.	RS.	RS.	RS.
1. Main canal	1,593	13	..	..	..	1,606
2. Ellore do.	..	..	1,647	..	..	1,647
3. Masulipatam canal	2,080	..	2,265	..	..	4,345
4. Pamarru junction canal ..	..	..	..	..	..	..
5. Pulleru canal	83	..	279	..	..	362
6. Polraz do.	212	..	860	..	..	1,072
7. Bantumilli canal	149	..	236	..	..	385
Total ..	4,117	13	5,287	..	..	9,417
Kistna Western delta.						
1. Main canal	..	..	276	..	..	276
2. Nizampatam canal	1,029	161	689	25	..	1,904
3. Bank canal	562	49	841	..	636	2,088
4. Commamur canal	1,830	91	1,774	76	..	3,771
Total ..	3,421	301	3,580	101	636	8,039
Grand total ..	7,538	314	8,867	101	636	17,456

—	Repairs to navigable canals.						Total of columns 7 and 13.
	Repairs to canal banks.	Silt clearance in canals.	Repairs to masonry works.	Dredging.	Miscellaneous.	Total.	
	8	9	10	11	12	13	14
Kistna Eastern delta.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1. Main canal	..	5,446	529	..	1,209	7,184	8,790
2. Ellore do.	..	11,999	238	..	402	12,639	14,286
3. Masulipatam canal	156	17,495	249	..	8	17,908	22,253
4. Pamarru junction canal ..	..	1,197	..	..	..	1,197	1,197
5. Pulleru canal	..	4,625	..	..	..	4,625	4,987
6. Polraz do.	12	2,371	231	..	27	2,641	3,713
7. Bantumilli canal	14	..	8	..	..	22	407
Total ..	182	43,133	1,255	..	1,646	46,216	55,633
Kistna Western delta.							
1. Main canal	..	16,512	64	..	510	17,086	17,362
2. Nizampatam canal	..	7,086	48	285	1,669	9,088	10,992
3. Bank canal	547	1,176	78	..	1,874	3,675	5,763
4. Commamur canal	..	15,291	912	622	556	17,381	21,152
Total ..	547	40,065	1,102	907	4,609	47,230	55,269
Grand total ..	729	83,198	2,357	907	6,255	93,446	1,10,902

C (1).—Abstract of statement C.

Names of canals.	Navigation repairs proper in column 7 of statement C.	Repairs to navigable canals, column 13 of statement C.	Proposed length of canals.		Length open to navigation.		Proportion of column 3 chargeable to navigation.		Total, columns 2 and 7.
							Percentage.	Amount.	
1	2	3	4		5		6	7	8
Kistna Eastern delta.	RS.	RS.	MLS.	CHS.	MLS.	CHS.		RS.	RS.
1. Main canal	1,606	7,184	0	51	0	51	One third.	2,395	4,001
2. Ellore do.	1,647	12,639	40	0	40	0		4,213	5,860
3. Masulipatam canal	4,345	17,908	49	7	49	7		5,969	10,314
4. Pamarru junction canal ..	..	1,197	0	40	0	40		399	399
5. Pulleru canal	362	4,625	26	62	17	62		1,542	1,904
6. Polraz do.	1,072	2,641	26	16	26	16		880	1,952
7. Bantumilli canal	385	22	24	60	14	20		7	392
Total ..	9,417	46,216	167	76	148	36	..	15,405	24,822

C (1).—Abstract of statement C—*cont.*

Names of canals.	Navigation repairs proper in column 7 of statement C.	Repairs to navigable canals, column 13 of statement C.	Proposed length of canals.		Length open to navigation.		Proportion of column 3 chargeable to navigation.		Total, columns 2 and 7.
							Percentage.	Amount.	
1	2	3	4		5		6	7	8
Kistna Western delta.	RS.	RS.	MLS.	CHS.	MLS.	CHS.		RS.	RS.
1. Main canal	276	17,086	13	0	13	0	One third.	5,695	5,971
2. Nizampatam canal	1,904	9,088	28	20	28	20		3,029	4,933
3. Bank canal	2,088	3,675	45	60	37	30		1,225	3,313
4. Commamur canal	3,771	17,381	58	10	58	10		5,794	9,565
Total ..	8,039	47,230	145	10	136	60	..	15,743	23,782
Grand total ..	17,456	93,446	313	6	285	16	..	31,148	48,604

A.—Statement of receipts and charges in the Kistna district navigation for the year 1889-90.

Receipts for 1889-90. Description.	Amount.	Charges for 1889-90. Description.	Amount.
	RS.		RS.
(1) License fees for cargo boats	3,227 — 69	(1) Lock establishment	10,233
		(2) Lock and lock weir repairs ..	7,538
License fees for passenger boats, 1st class	...	(3) Navigation buildings—	
		(a) Improvements	...
		(b) Repairs	314
License fees for passenger boats, 2nd class	2,427	(4) Tow-path maintenance ...	8,867
License fees for Government boats	3,917	(5) Dredging	101
License fees for staff boats ...	72	(6) Miscellaneous, including any charges not appertaining to the above items	636
License fees for miscellaneous, including private and pleasure boats, duplicate license fees	381	(7) Share of canal maintenance ...	31,148
		(8) Miscellaneous general charges.	...
(2) Tolls on cargo boats, passenger boats and miscellaneous ...	17,008	(9) Interest for the year on capital outlay on navigation works at 4 per cent. on Rupees 3,70,401 and at 2 per cent. on Rs. 24,417 as per column 4 of abstract of memorandum A (1)	15,304
(3) Rafts	337		
Total ...	27,300		
License fees for Government floating plant	...		
Rent from staff boats	1,268		
Do. paddle boat ...	9		
Do. boat basin ...	66		
Total ...	28,643		
Balance deficient ...	45,498		
Total ...	74,141	Total ...	74,141

ABSTRACT of memorandum A (1).—Statement showing the capital outlay on navigation works proper of the Kistna delta from the year 1870-71 inclusive.

Sections of delta.	To end of 1888-89.	Outlay in 1889-90.	Total.
	RS.	RS.	RS.
Eastern section	1,26,364	11,492	1,37,856
Western do.	2,44,037	12,925	2,56,962
Total ...	3,70,401	24,417	3,94,818

B.—Statement showing the revenue obtained in licensing boats in the Kistna district from 1887-88 to 1889-90.

—	1887-88.					1888-89.					1889-90.				
	Class.	Total number.	Tonnage.	Number of passengers.	Amount of license.	Class.	Total number.	Tonnage.	Number of passengers.	Amount of license.	Class.	Total number.	Tonnage.	Number of passengers.	Amount of license.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					RS.					RS.					RS.
1. License fees for cargo boats	..	98	2,065	..	5,163 − 320	..	95	2,094	..	5,235	..	58	1,291	..	3,227 − 69
Do. for passenger boats, 1st class.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. for do. 2nd do.	2nd	47	1,166	2,908	3,498 − 28	2nd	39	988	2,474	2,964	2nd	33	809	2,038	2,427
Do. for Government boats ..	..	55	1,228	..	3,070	..	58	1,499	..	3,748	..	60	1,567	..	3,917
Do. for staff boats	..	7	..	..	84	..	6	..	..	72	..	6	..	..	72
Do. for miscellaneous, including private and pleasure boats, duplicate license fees, &c.	..	19	..	..	219 − 12	..	25	..	..	307	..	28	..	..	381
2. Tolls on cargo boats, passenger boats, miscellaneous	..	..	..	..	16,457	..	..	..	..	15,170	..	..	..	..	15,472
Tolls on rafts	..	..	..	..	2,152	..	..	..	..	2,767	..	..	..	..	1,873
	..	..	..	..	30,643 − 360	..	..	..	..	30,263	..	..	..	..	27,300
	..	..	..	..	30,283	..	..	..	..	..	..	..	..	..	..
License fees for Government floating plant.	..	..	..	..	..	..	..	..	..	135	..	..	..	..	..
Rent from staff boats	..	..	..	..	..	..	..	..	..	1,193	..	..	..	..	1,268
Do. paddle boat	..	..	..	..	..	..	..	..	..	30	..	..	..	..	9
Do. boat basin	..	..	..	..	..	..	..	..	..	70	..	..	..	..	66
Total ..	..	..	..	..	30,283	..	..	..	..	31,691	..	..	..	..	28,643

D.—Memorandum showing the offences against bye-laws during the official year 1889-90 and punishments inflicted.

Nature and description of boats.	Rules Nos. 26 and 27.		Rule No. 26.		Rule No. 21.		Obstructing Government punts.		Rule No. 31.	
	Number of boats.	Number of days stopped.	Number of boats.	Number of days stopped.	Number of boats.	Number of days stopped.	Number of boats.	Number of days stopped.	Number of boats.	Number of days stopped.
Kistna Eastern division.										
Passenger boat ..	T. 2 of Bandar tidal lock.	10	24 K.	7	601 G.	9	..	..	..	..
					240 G.	9	..	..	..	..
	T. 932 of Bezváda lock.	10	1168 ticket Bezváda.	7	368 G.	9	..	..	..	..
					5047 G. toll ticket.	9	..	..	..	..
	T. 1063 of Bandar tidal lock	10			517 G.	9	..	..	..	..
	T. 1205 Bandar.	10			271 G.	9	..	..	..	..
	L. 33 K. ..	10			507 G.	9	..	..	..	..
					96 G.	9	..	..	..	..
					179 G.	9	..	..	..	..
					9203 G. toll ticket.	9	..	..	..	..
					578 G.	9	..	..	..	..
					5763 toll ticket.	9	..	..	..	..
Cargo boat ..	T. 1064 of Bandar tidal lock.	10	62 K.	7	..	..	63 K.	7	..	..
	T. 1035 Bezváda lock.	10	..	..	..	..	..	..	..	..
Private boat ..	14 K. ..	10	..	..	..	..	..	..	..	..
	25 B.C. ..	10	..	..	..	..	..	..	..	..
Kistna Western division.										
Passenger boat ..	..	..	118 K.	15	..	..	..	..	..	..
Cargo boat ..	..	..	..	..	..	..	..	..	Toll ticket No. 566	1
Do. ..	..	..	..	..	..	..	..	..	No. 209	1
Do. ..	..	..	..	..	..	..	..	..	392	1
Do. ..	..	..	..	..	..	..	..	..	244	1
Do. ..	..	..	..	..	..	..	..	..	192	1
Do. ..	..	..	..	..	..	..	..	..	2447	1
Do. ..	..	..	..	..	..	..	..	..	641	1

(Signed) J. HANNAN,
Superintending Engineer, II Circle.

7th October 1890.

Office-note to the Examiner, Public Works Accounts, dated 21st Oct. 1890, No. 215.
,, from the ,, ,, ,, ,, 28th ,, ,, ,, 6393.
Memo. to the Superintending Engineer, II Circle, ,, 1st Nov. ,, ,, 141 K.S.
Letter from the ,, ,, ,, ,, 26th ,, ,, ,, 2139 K.S.
Office-note to the Examiner, Public Works Accounts, ,, 5th Dec. ,, ,, 264.
,, from the ,, ,, ,, ,, 12th ,, ,, ,, 7377.
Memo. to the Superintending Engineer, II Circle, ,, 18th ,, ,, ,, 164 K.S.
Letter from the ,, ,, ,, ,, 24th Jan. 1891, ,, 2632 K.S.
Office-note to the Examiner, Public Works Accounts, ,, 2nd Feb. ,, ,, 32.
,, from the ,, ,, ,, ,, 10th ,, ,, ,, 850.

No. 28 I.

Submitted to Government.

2. During the year 1889-90 the navigation receipts of the Kistna delta system amounted to Rs. 28,732 and the refunds of revenue to Rs. 89 as booked by the Examiner of Public Works Accounts. The net amount of navigation receipts is, therefore, Rs. 28,643 and not Rs. 28,647 as was shown in the statements received from the Superintending Engineer. The difference of Rs. 4 represents the refund of

revenue, which, the Examiner states, appeared in the accounts of the Kistna Eastern division for the month of August 1889. The difference has been adjusted in this office by reducing the amount of receipts from license fees under "Miscellaneous" as shown in the Superintending Engineer's statements from Rs. 385 to Rs. 381.

CHEPÂK,
16th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 23rd February 1891, No. 168 I., Public Works.

Recorded.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, II Circle.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 168 I.

FEBRUARY.

Navigation Receipts and Charges, Kistna Delta System

Statements of — for 1889-90, recorded.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From J. W. MARTIN, Esq., Superintending Engineer, I Circle, to th Chief Engineer for Irrigation, dated Nallacherla, 13th September 1890, No. 720 G.N.

I have the honor to forward, herewith, a completion report for No. 12 under-tunnel at 17 miles 75 chains, Rushikulya canal, connected with the Rushikulya project, and to inform you that an excess outlay of Rs. 735-7-1 was incurred over the sanctioned estimate Rs. 2,200.

2. In the revised estimate a sum of Rs. 2,500, which is not yet sanctioned, is provided for this under-tunnel.

3. The cause of the excess outlay is chiefly due to insufficient provision made both in the original and revised estimates for "cut-stone" as explained in the completion report.

4. Under these circumstances, I request that you will be good enough to obtain the sanction of Government to the excess outlay to be met from the lump sum provision made for unforeseen works in the Rushikulya project estimate.

To the Examiner of Public Works Accounts, dated 24th September 1890, No. 195.
From the „ „ „ „ 6th November „ „ 656.

ORDER—dated 23rd February 1891, No. 169 I., Public Works.

The outlay incurred on the under-tunnel at 17·75 miles on the Rushikulya canal, as shown in the completion report submitted by the Superintending Engineer, is Rs. 2,935. Of this amount, the outlay of Rs. 2,850 has already been admitted in G.O., No. 466 I., dated 29th August 1890, and the Examiner of Public Works Accounts is now authorized to pass the balance of Rs. 85, this excess being met from the amount reserved for unforeseen works of the Rushikulya project, which will then be reduced to Rs. 20,508.

2. This sanction has been registered as No. 142 I. of 1890-9 1.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, I Circle, with enclosure.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23*rd*.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 169 I.

FEBRUARY.

Under-tunnel on the Rushikulya canal

The Examiner, Public Works Accounts, authorized to pass the excess expenditure incurred on the — at 17·75 miles.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

From Lieut.-Colonel A. C. SMITH, R.E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 14th February 1891, No. 1449 T.C.

I have the honor to request that the following modification of allotments in the Trichinopoly division may be sanctioned at an early date:—

Item No.	——	Existing grant.	Modification of allotment applied for.		Modification of allotment proposed.	
			Reduction.	Increase.	Reduction.	Increase.
	PROVINCIAL IRRIGATION.	RS.	RS.	RS.	RS.	RS.
	43. MINOR WORKS AND NAVIGATION.					
	Agricultural works.					
	River conservancy.					
	Repairs.					
1	Lump sum grant	* 21,650	..	1,200	..	1,200
	River embankments.					
	Minor works.					
2	Lump sum grant	* 2,200	1,200	..	1,200	..
	Total ..	..	1,200	1,200	1,200	1,200

* Corrected in the office of the Chief Engineer for Irrigation with reference to G.O., No. 105 I., dated 6th February 1891.

2. *Item* 1.—Existing grant is found insufficient to meet the sanctioned estimates; hence the additional grant applied for, which may be met from item 2.

Item 2.—An estimate of Rs. 1,480 for constructing two earthen groynes rivetted with stone in front and upstream side of the Agunda Cauvery right bank was sanctioned in Superintending Engineer's register No. 107 of 1890-91 and an allotment of Rs. 1,200 was applied for and sanctioned in G.O., No. 753 I., dated 15th December 1890. It is now reported that the work has since been found unsuitable; hence the allotment is proposed to be transferred to item 1.

ORDER—dated 23rd February 1891, No. 170 I., Public Works.

The modifications of allotments proposed are sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 170 I.

FEBRUARY.

Modifications of Allotments

The — in the Trichinopoly division proposed by the Superintending Engineer, VI Circle, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 29th January 1891, No. 37 E.I.

I have the honor to submit, for sanction, a supplemental estimate of Rs. 1,300 for raising the revetment of A. Vylamur large tank in Tindivanam taluk with new stones.

2. An estimate for Rs. 4,820 was originally sanctioned in G.O. No. 628 I., dated 17th December 1889, and is being worked out, but is now found absolutely necessary to raise the revetment to one foot above M.W.L., which is not provided in the original sanctioned estimate. The present supplemental estimate provides for the same and for turfing the slopes at breaches and surplus channel.

ENCLOSURE.

REPORT to accompany the estimate of the cost of raising revetment of the A. Vylamur large tank in Tindivanam taluk with new stones.

	RS.
Amount of estimate	1,300

An estimate is sanctioned under G.O. No. 628 I., dated 17th December 1889, for Rs. 4,820 for Vylamur large tank under Major Original works and it is being executed now.

2. This estimate does not provide for raising the revetment to one foot above M.W.L. The old stone-work is completed now as per the sanctioned estimate, and the levels are as per plan sent with this.

3. It is found absolutely necessary to raise the revetment to one foot above M.W.L., and the present estimate provides for the same and for turfing the slopes at breaches and surplus channel.

4. This estimate is sent separately, and, if ordered, it may be included in the original estimate and the whole revised.

5. To complete the work early, order is solicited sanctioning this estimate for execution.

TINDIVANAM.
31st October 1890.

(Signed) V. KUPPUSAMI,
Supervisor, Public Works Department.

CUDDALORE,
22nd December 1890.

(Signed) A. W. SMART, Major, R.E.,
Executive Engineer.

ORDER—dated 23rd February 1891, No. 171 I., Public Works.

The following supplemental estimate is sanctioned :—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation Works for which neither Capital nor Revenue Accounts are kept.
Original Works.
South Arcot Division.

	RS.
Raising the revetment of A. Vylamur large tank, No. 60 of list of "Imperial" works, estimate	1,300

2. This sanction has been registered as No. 143 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, V Circle, with two enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 171 I.

FEBRUARY.

Vylamur large tank, South Arcot Division

Estimate of Rs. 1,300 for raising the revetment of —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From Lieut.-Colonel A. C. SMITH, R. E., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 13th February 1891, No. 1092 M.D.

In continuation of my letter No. 1266 T.C. of the 18th ultimo, I have the honor to request that the following modification of allotments in the Madura division may be sanctioned at an early date :—

Item No.	——	Existing grant.	Modification of allotment applied for.		Modification of allotment proposed.	
			Reduction.	Increase.	Reduction.	Increase.
	43. MINOR WORKS AND NAVIGATION.	RS.	RS.	RS.	RS.	RS.
	WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT.					
	Tank Restoration works.					
	Original works—Major.					
1	Anthur anicut channel and four tanks depending on it. Improving the—, estimate Rs. 23,188, sanctioned in G.O., No. 423 I., dated 19th July 1888.	7,138	700	..	700	..
2	Nos. 267 and 268 Padayur-Periyakulam tank. Improvements to—, estimate Rs. 3,835, sanctioned in E.I. (T.R.S.) register No. 71 T/M. of 1890-91.	* 2,200	..	700	..	700
	Total ..	..	700	700	700	700

* Corrected in the office of the Chief Engineer for Irrigation with reference to G.O., No. 105 I., dated 6th February 1891.

2. *Item* 1.—The work is virtually completed; balance of grant not required is proposed to be transferred to item 2.

Item 2.—The outlay on the work up to end of January amounts to Rs. 2,136, an allotment of Rs. 2,200 was applied for in this office No. 1266 T.C., dated 18th January 1891, and a further grant is required, which may be met from item 1.

ORDER—dated 23rd February 1891, No. 172 I., Public Works.

The modifications of allotments proposed are sanctioned.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 172 I.

FEBRUARY.

Modifications of allotments

The — in the Madura division proposed by the Superintending Engineer, VI Circle, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper:—

No. 30 I.

Note by the Chief Engineer for Irrigation.

In his telegram, dated 13th February 1891, the Superintending Engineer, I Circle, applied for an additional allotment of Rs. 2,000 for the Ganjam division under River embankments—Repairs. Against this demand Rs. 975 were allotted in G.O., No. 162 I., dated 20th February 1891, and the Superintending Engineer was informed that there were no funds available to meet the balance of the demand; but the Superintending Engineer, V Circle, having since reported certain surrenders from the grants for the Negapatam division under Agricultural works there are now funds available and it is suggested that the balance of the demand for the Ganjam division, viz., Rs. 1,025, may be appropriated from the reserve under Agricultural works.

CHEPÂK.
19th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 23rd February 1891, No. 175 I., Public Works.

The appropriation recommended in the foregoing note is sanctioned.

2. The following deferred telegram will be sent to the Superintending Engineer, I Circle:—

Your telegram, dated 13th February 1891. Further additional allotment Rs. 1,025 sanctioned for Ganjam river embankments—repairs.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, I Circle.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23*rd*.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 175 I.

FEBRUARY.

Allotment

Further additional — of Rs. 1,025 under River embankments (repairs), Ganjam division, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following papers :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 28th January 1891, No. 32 E.I.

I have the honor to submit, for sanction of Government, an estimate of Rs. 2,340 for constructing a surplus sluice in the Odembaghyar of Kodamurti and forming a left bank below the bridge on road No. 36 in the Negapatam division.

This estimate has been prepared at the instance of the Head Assistant Collector and on the requisition from one Chokkappa Mudalliar, who owns land skirting the bridge and the railway embankment. The Collector of the district reports that this land owner has contributed one-third the amount of the estimate, viz., Rs. 780, and also Rs. 191, being percentage charge on account of establishment and tools and plant on Rs. 780 at 24½ per cent.

As the amount of the contribution exceeds Rs. 500, I submit the estimate for sanction of Government under para. 1339 of the Public Works Code. The estimate has been countersigned by the Collector.

No. 29 I.

Note by the Chief Engineer for Irrigation.

The execution of work referred to in the above-quoted letter, which had better be described as "constructing a flood embankment left side of Kodamurti river below road No. 36 with sluice to pass drainage, but to keep out river floods," is recommended for execution as a contribution work.

2. Apart from the question of contribution, it is within the competence of the Superintending Engineer to deal with the details of the plan and estimate, and he should do so; but, before having the work put in hand, it would be well for him to consider the suitability of the plan of the sluice and whether a work with sill at the level at which it is desired to retain water in the channel and swing shutters above, which will close when the water in the river is higher than that in the channel, will not be more suitable.

CHEPÂK,
17th February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

Order—dated 23rd February 1891, No. 176 I., Public Works.

The execution by this department of the work is sanctioned.

2. The attention of the Superintending Engineer is called to the suggestions made in para. 2 of the note by the Chief Engineer for Irrigation.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, VI Circle, with nine enclosures.
,, Examiner, Public Works Accounts.
,, Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 176 I.

FEBRUARY.

Kodamurti River

The execution of the work "constructing a flood embankment left side of — below road No. 36 with a sluice to pass drainage, but to keep out river floods" by the Public Works Department, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

From G. D. WYBROW, Esq., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 21st October 1890, No. 862-G.N.

I have the honor to submit, herewith, an estimate, amounting to Rs. 1,300, for "constructing a rest-house at Gulleri anicut, connected with the Rushikulya Project," together with a copy of Executive Engineer's letter, * and to request that you will be good enough to obtain the sanction of Government to the same.

* No. 244 of 6th October 1890.

2. The amount of this estimate exceeds that provided for the work in the revised estimate of the Rushikulya Project, dealt with in G.O., No. 482 I., dated 4th September 1890, by Rs. 250, and this excess may be met from the estimate of Rs. 640 for temporary quarters at Sergada on which there will be no expenditure.

3. The estimate originally sent in did not provide out-houses and amounted to Rs. 1,050, the lump sum amount entered in the revised estimate. Out-houses have now been allowed in the estimate, and this brings the amount of the estimate to Rs. 1,300 or Rs. 250 in excess of the lump sum allowed.

ORDER—dated 23rd February 1891, No. 177 I., Public Works.

The following estimates are sanctioned, the amount required to meet the outlay proposed on the first work being met from the balance of the amount reserved for unforeseen works of the Rushikulya project, and that for the second work by reducing the sanction accorded in G.O., No. 289 I., dated 25th April 1887, for temporary quarters at Sergada from Rs. 640 to Rs. 390 :—

Famine Relief and Insurance.
35. Construction of Protective Irrigation Works.
Rushikulya Project.
I. Works.
(1) Head Works.
K. Buildings.

	RS.
1. Constructing rest-house at Gulleri anicut	1,050
2. Constructing sheds for lascars and servants	250

The balance still available for unforeseen works is Rs. 19,458.

2. This sanction has been registered as No. 144 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, I Circle, with five enclosures.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 23rd.

Recd. *Encl.*

G.O., 23rd Feb. 1891, No. 177 I.

FEBRUARY.

Rest-house at Gulleri Anicut, Rushikulya Project

Estimates, amounting to Rs. 1,300, for constructing — and for constructing sheds for lascars and servants, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—the following paper :—

G.O., dated 19th February 1891, No. 129, Revenue.

Read—the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 6th February 1891, No. 67 :—

MR. CLOGSTOUN.

Read—the following letter from F. A. NICHOLSON, Esq., Collector of Tinnevelly, to the Secretary to the Commissioner of Revenue Settlement, Land Records and Agriculture, dated Tinnevelly, 26th January 1891, No. 49 : —

I have the honor to submit the special season report called for in G.O., No. 7772, dated 16th December 1890. The slight delay in reply is due to the necessity for my seeing the worst parts personally. The present report is based on my own observations in Sankaranainárkoil, Nánguneri and Tinnevelly, and on the reports of the Divisional officers and the Tahsildars after personal inspection in the other taluks.

2. *General remarks.*—For the present season, the district may be divided into three groups of taluks :—

(1) Otapidáram and Sátúr which need no present attention owing (*a*) to better and more seasonable rainfall, (*b*) to the large black-soil area and extensive cotton crops. The crops generally, in these taluks, are better than elsewhere, and the great cotton crop is so far in good condition, and will probably yield from well to fairly.

(2) Ambásamudram, Tenkási, Tinnevelly and Tenkarai; these are not as fortunate as the first group, but owing to the large river-fed area under the Támbraparni and Chittár with the considerable kar wet crops, and—relative to the taluks of the third group—moderately good rainfall in the north-east monsoon, there is no such trouble as in the third group: there will, however, be very heavy wet remissions.

(3) Srívilliputur, Sankaranainárkoil and Nánguneri; these are, by far, the worst taluks. The soil is generally of the poorest description, the irrigation more precarious, and in the present season, the rainfall very slight. It is this group which causes immediate anxiety and there is the certainty, now irremediable, of great loss to Government and of immense loss and suffering to the ryots.

3. Appendix I is a statement of rainfall for 20 years, and is here abstracted; it will be seen that the district average for the current year is only 18·77 inches as against an average of 27 inches, and that it is only less poor than that of 1876, the year which produced the famine, in which the rainfall was 15·10 inches; in no other year was the average below 18 inches :—

Abstract of rainfall.

—	Ambásamudram.	Huzur.	Nánguneri.	Otapidáram.	Sátúr.	Srívilliputur.
1	2	3	4	5	6	7
	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.
1871 to 1890	34·08	26·31	26·60	23·00	24·39	27·44
1871 to 1889	34·70	26·93	27·11	22·90	24·57	27·91
1890	22·32	14·42	16·87	24·90	20·90	18·45

—	Sankaranainárkoil.	Tenkási.	Tenkarai.	Tinnevelly.	Tuticorin.	District average.
	8	9	10	11	12	13
	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.
1871 to 1890	23·35	38·62	24·69	27·34	21·58	27·04
1871 to 1889	23·64	39·54	25·08	27·97	21·82	27·47
1890	17·88	21·21	17·30	15·44	16·88	18·77

The annual average, however, does not quite gauge the case. It is the north-east monsoon average which we look to, at least as regards the current difficulty. For, the rain-fed tanks and irrigation sources fed from small hill streams, and the wells and the dry crops, generally, depend almost entirely on the north-east monsoon, and failure in this means, very wide failure.

Statement No. II, abstracted as follows, shows the rainfall for October, November and December, averaged for a series of years and for the current year by taluks :—

Stations.	October.		November.		December.		Remarks.
	Average for 1882—89.	Actuals for 1890.	Average for 1882—89.	Actuals for 1890.	Average for 1882—89.	Actuals for 1890.	
	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.	INCHES.	
Huzur	7·85	3·85	6·61	2·53	5·02	2·35	Showers light, but a fairly good intervals.
Tinnevelly	8·11	4·65	6·90	3·40	4·94	2·30	..
Nánguneri	7·20	3·65	8·65	3·35	5·29	2·97	..
Ambásamudram	7·79	2·00	8·48	7·90	8·56	2·50	..
Tenkási	7·68	4·57	9·38	1·57	5·03	1·53	Very poor in November and December, got 7 inches on 20th and 21st January 1891.
Sankaranainárkoil ..	5·37	2·85	6·11	2·35	5·02	0·80	Very poor throughout, especially December.
Srívilliputur	7·89	6·50	7·18	1·10	4·42	1·00	Very marked failure in November and December.
Sátúr	7·68	7·20	3·96	·55	3·17	0·95	Had 3·25 inches in September when 4 taluks had none, and 4 had below 1 inch.
Otapidáram	5·66	9·20	6·26	3·45	3·65	3·10	..
Tenkarai	8·12	4·80	6·93	1·50	4·16	3·50	..
Tuticorin	5·28	5·73	9·59	2·94	3·98	2·57	..
District average	7·15	5·00	7·28	2·79	4·88	2·14	..

Statement No. III is the average rainfall of the district for 20 years by stations and months compared with that for 1890, and shows the general deficiency in every taluk in the current year. It will be seen that 1889-90 was an unfavorable year and has been followed by a pre-eminently bad one. The two years are comparable with 1875-76 and 1876-77. Not only was the rainfall short, but it was short in the cultivation months ; except in Sátúr, the heavy fall began in and was almost confined to the last week of October ; after which only light showers were received in November. In Otapidáram, Tenkarai, Tinnevelly and parts of Nánguneri, there was good rain early in December ; but in other taluks, only light rains, and those only on the 5th and 6th December. Sátúr, though unfortunate in November and December, had a rainfall of $3\frac{1}{4}$ inches in September, while four other taluks received absolutely nothing and the other four only from 20 to 70 cents ; hence its comparatively good dry crops in spite of very poor late rains. The cultivation season, generally, was therefore extremely short, and agricultural operations scanty and hurried. Moreover, the tanks received only a partial supply, none earlier than the end of October, and only on one or two occasions. I have seen no tank, large or small, in Tinnevelly, Sankaranainárkoil and Nánguneri that had received, during the monsoon, above half a supply. In three weeks' incessant inspection from 26th December to 20th January, I saw no tank that then had more than one week's water in it, and the vast majority were stone-dry. I have therefore given no figures as to the supply in the tanks ; practically all were empty by the end of December.

4. The soils of the taluks are as follow :—

Group I—chiefly black-cotton soil.
Group II—red loam and black irrigated soils.

Group III—red sand, with a small area of red loam, chiefly poor, and a moderate area of black soil, except in Srívilliputur, which is largely black soil and

red loam. Statement IV gives the soils for the taluks in group III and is abstracted as follows :—

Taluks.	Wet.			Total.	Dry.					Total.	Grand Total.
	IV class.	VII class.	VIII class.		II class.	IV class.	V class.	VII class.	VIII class.		
1	2	3	4	5	6	7	8	9	10	11	12
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
Sankaranainárkoil ..	4,044	9,119	251	13,448	3,004	39,916	868	12,110	59,954	115,852	129,300
Srívilliputur ..	15,757	6,218	3	21,978	..	87,837	..	49,157	12,679	149.673	171,651
Nánguneri	140	28,555	65	28,760	2,495	5,146	249	1,363	201,364	210,617	239,377

In Sankaranainárkoil taluk almost half is red sand, more than one-fourth being under class VIII-4. About two-fifths, however, is black sand and loam, chiefly in the "north-east" portion of the taluk. Srívilliputur is nearly all black and red loam, but the quality is not very good; Nánguneri is almost entirely red sand, all but one-twentieth being under class VIII-4, 5 & 6; that is, of the very lowest classes. In this last taluk, however, the palmyras on the sandy tracts provide food and money, to some extent, irrespective of occasional droughts; but for them, the taluk would, over large areas, be uninhabitable; there are also, in some places, springs near the surface, which give oases of cultivation amidst sandy wildernesses.

5. By the above statements, it will be seen that the tracts poorest in soil have had the poorest rainfalls for the past two years.

6. Statement V shows for three years the area of cultivation, wet and dry, by taluks, up to 31st December in each year. An abstract is given below :—

Group.	Taluks.	Fasli 1298.		Fasli 1299.		Fasli 1300.	
		Holding.	Cultivation.	Holding.	Cultivation.	Holding.	Cultivation.
		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
II	Tinnevelly	129,001	76,589	130,657	72,510	130,657	70,602
II	Tenkarai	224,301	135,750	225,330	126,641	225,330	120,028
II	Ambásamudram	115,535	63,348	115,699	60,198	115,699	55,201
II	Tenkási	83,680	61,381	84,025	61,517	84,025	54,081
III	Sankaranainárkoil	134,726	101,753	135,589	101,710	135,589	88,835
III	Srívilliputur	174,815	158,491	178,483	161,022	179,385	156,575
III	Nánguneri	257,228	132,084	261,491	134,156	261,491	112,232

In Tenkarai and Nánguneri only one-half to three-fifths of the dry holding is cultivated with ordinary annual crops in a good year (fasli 1298); this is here due to poverty of soil, and to the numerous rain-fed tanks. In Ambásamudram, little more than one-third of the dry area is annually cultivated, but this is because so much attention is paid to the river-fed wet area. In Tenkási, two-thirds of the dry area are cultivated, as the south-west monsoon is good, and some of the red loam bears two crops annually. In Sankaranainárkoil and Srívilliputur, the great bulk of the dry lands are regularly cultivated, as the ryots have little else to depend upon, the wet area being small, and the irrigation very precarious.

7. Statement VI shows the cultivation of the district for the past 3 years, month by month, from January to December. It will be seen that in 1889-90, dry crops were short by above a lakh of acres, while 1890 shows in wet lands a diminution in area of no less than 37,260 acres, first and second crop together, from the figures of 1888. This falling off is very significant both of scanty and few rains; the showers were neither heavy enough on the hills to feed the streams, nor on the plains to fill the rain-fed tanks, nor on the open plains to permit the successful cultivation and sowing of even the ordinary dry crops. As noted under rainfall, the season did not really begin till the heavy rains of the very end of October, while it practically

ceased with the 1st week in December for the best taluks, and in others with the middle of November.

8. But the mere contraction of area shows little of the difficulty save by inference; it is the failure of the growing crop that is most important. Statement VII accordingly shows the probable outturn of the several crops, both wet and dry; from my own tours, I can say positively that the failure in the present wet and dry crops is not exaggerated in group III, and probably not much in the other groups, except in Ambásamudram and part of Tenkarai. The kar crops of paddy is, I think, too low; though poor in parts, the Támbraparni valley yield was good, nor do I consider that the pishanam yield under that irrigation will be much less than usual over the area actually cultivated, in spite of a scanty supply in the lower areas in Tinnevelly and Tenkarai. As regards the cotton crop, it is, at present, impossible to predict; without more rain, it will probably produce a short crop; with more rain soon, it will yield well. The terrible failure in paddy other than under the Támbraparni, both in waste and withered, is due to the extraordinary failure, even on the hills, of both south-west and north-east monsoon. The great hill-fed tanks on the west of the districts in Tenkási, Sankaranainárkoil and Srívilliputur got little or nothing in either monsoon. The Chittár, which feeds channels and tanks in Tenkási, has been a great failure, while rain-fed tanks generally have received very short, or almost *nil* supplies; hence either waste for one or both crops, or withered crops to an enormous extent, as will be seen by inspecting the statement, and on perusal of the taluk reports. The dry crops on the red soils are chiefly samai, horsegram, varagu and such like. Speaking generally, the two former have not produced above a 4-anna crop, and standing varagu without immediate rain will be a total failure. The cereals on black sand and loam have produced, and are producing moderately. Want of rain on all soils has resulted in poorly-filled ears; and even on black soils, the crop is uneven and thin in the taluks generally. Pulses are very poor, ulundu and the various grams, and dholl being scanty and stunted; horsegram, unless where planted early, is, in many places, a total failure, and on an average only a 4-anna crop. In some places in Nángunéri, Tenkási and Tinnevelly, even the palmyras are fading; this, however, is where there is a hard subsoil, such as gravel—largely lateritic—limestone, &c.; in these cases, the surface sand gets rapidly drained, especially where there is a slope and the trees are crowded, when the trees are apt to die right away, especially the young and the old.

8*a*. The crops irrigated from wells call for attention. The following table shows the wells for seven taluks together with the area irrigated as 1st and 2nd crop. These figures are taken from the Famine Analysis Registers, and in the taluks of Tenkarai and Ambásamudram seem erroneous. It is true that the picottah worked by coolies is in general use in these taluks, but the area irrigated is much too low. In Sankaranainárkoil and Srívilliputur, the number of wells and area irrigated are fortunately large, and the figures are, to my knowledge, approximately correct. But for these wells, the above two taluks would be within touch of famine. Nángunéri is poorly supplied with wells, and I have been much disappointed in my inspection. The ordinary rainfall is pretty good, and the people trust to their numerous rain-fed and hill-fed tanks, and to their palmyras:—

Group.	Taluks.	WELLS IN REPAIR.				Remarks.
		Number.	First crop.	Second crop.	Number of wells in wet ayacut.	
			ACS.	ACS.		
II	Tinnevelly	..	..	..	..	The number of wells in the wet lands is included in the total for each taluk.
II	Tenkarai	2,522	1,834	238	..	The figures have not been obtained for the wells in the taluks without such entries.
II	Ambásamudram ..	977	687	391	..	Wells in zemindaris within the taluks are not included.
II	Tenkási	1,525	2,417	1,613	296	
III	Sankaranainárkoil..	5,431	12,755	8,086	346	
III	Srívilliputur ..	10,816	19,696	12,100	1,096	
III	Nánguneri	2,620	5,026	2,904	263	

9. The state of prices partly serves to gauge the past two years. So far as the ryots get the high prices, it is good for them. But it means also such scanty crops that the laborers have little cultivation or harvest work, short wages, and little food. Statement VIII gives the prices for the past 5 years month by month for the four chief food-grains. An abstract follows:—

Grain.	Seers of 80 tolahs each.				
	Average of 4 years, 1886-89.	Average of 1890.	Prices in January 1890.	Prices in July 1890.	Prices in December 1890.
Rice, second sort	13·52	10·38	10·9	10·0	10·4
Cholum	24·07	17·34	18·7	16·9	16·1
Cumbu	20·55	15·35	16·6	14·7	15·5
Ragi	25·67	19·19	22·0	17·9	19·6

Rice has gone from $13\frac{1}{2}$ seers to $10\frac{2}{5}$; cholum from an average of 24 to 16; cumbu from an average of $20\frac{1}{2}$ to $15\frac{1}{2}$; ragi from an average of $25\frac{2}{3}$ to $19\frac{2}{3}$. It is noticeable that prices in 1890 rose to their highest in July owing to a scare upon the partial failure of the south-west monsoon, and fell slightly towards the end of the year when, however, they were slightly higher than at the beginning. The great rise occurred in December 1889 and again temporarily in July 1890.

10. Statement No. IX is a table of prices for *1889* and *1890* for the taluks of group III. An abstract is here given:—

Seers of 80 tolahs.

Taluk.	Second sort rice.						Cholum.					
	January 1889.	January 1890.	July 1889.	July 1890.	December 1889.	December 1890.	January 1889.	January 1890.	July 1889.	July 1890.	December 1889.	December 1890.
1	2	3	4	5	6	7	8	9	10	11	12	13
Sankaranainárkoil	13·76	11·04	13·44	9·60	10·56	10·24	27·51	18·85	26·14	17·02	18·85	14·74
Srívilliputur	15·52	11·52	13·44	9·92	10·72	9·92	27·36	19·91	25·84	17·02	18·24	14·44
Nánguneri	11·63	9·51	11·32	8·30	9·36	9·66	..	..	..	..	..	..

Taluk.	Cumbu.						Ragi.					
	January 1889.	January 1890.	July 1889.	July 1890.	December 1889.	December 1890.	January 1889.	January 1890.	July 1889.	July 1890.	December 1889.	December 1890.
	14	15	16	17	18	19	20	21	22	23	24	25
Sankaranainárkoil	22·52	..	22·24	..	..	13·90	32·75	22·74	25·02	17·16	22·02	20·88
Srívilliputur	27·80	20·99	22·93	15·98	19·32	16·26	31·03	22·31	25·74	16·01	20·73	17·59
Nánguneri	..	..	..	..	..	..	..	..	..	..	..	..

I am unable to get figures to show the import of food-grains, but there has been a very considerable recent importation by rail, specials being run daily to Tinnevelly;

that by sea at the three ports is much larger for the half-year ending 31st December 1890 than for that ending 31st December 1889, but is smaller than that for the corresponding half-year in 1888, which was a good year, while the exports are but little smaller.

11. The population of the taluk groups is as follows :—

I.		II.		III.	
Otapidáram	269,797	Tinnevelly	171,378	Sankaranainárkoil ..	181,064
Sátúr	150,886	Tenkarai	283,110	Srívilliputur	163,608
		Tenkási	140,405	Nánguneri	174,347
		Ambásamudram	165,152		
Total ..	420,683	Total ..	760,045	Total ..	519,019

12. In brief, group I, viz., the taluks of Otapidáram and Sátúr, with a population of 420,683, need not at present be considered, but the cotton crop has to be watched; group II, viz., the taluks of Tinnevelly, Tenkarai, Tenkási and Ambásamudram, with a population of 760,045, are injured and poor, but not distressful in the sense of absolute scarcity owing largely to the Támbraparni; group III, viz., Sankaranainárkoil, Srívilliputur and Nánguneri, with a population of 519,019, are distressed to the verge of scarcity which may develop into dangerous distress if the next three months do not bring good rains.

13. Putting aside group I, I proceed to give details as to groups II and III. Of group II only slight notice is required, as I am not of opinion that any special measures are required at present except so far as the repair of Minor Irrigation works and advances for digging wells. Group III requires full description.

14. *Group III—Sankaranainárkoil taluk.*—This has been very fully inspected in every direction for about three weeks by myself, the Divisional officer, the Assistant Collector, and the Tahsildar. This taluk—in the west centre of the district—is one of the poorest and most precarious; its rainfall is frequently defective and its soils are generally wretched; the immense areas of 4 and 6 annas, which form the bulk of the taluk including zemindari tracts, are extremely poor and unproductive, unless well watered and improved as under well cultivation. The following table shows particulars of area, soils, &c.:—

Year.	Population.	Class.	Occupied area.		Cultivated area up to 31st December.	
			Wet.	Dry.	Wet.	Dry.
1	2	3	4	5	6	7
			ACS.	ACS.	ACS.	ACS.
1298	181,064	..	13,785	120,941	9,491	92,262
1299			13,810	121,779	8,037	93,673
1300			13,810	121,779	6,248	82,587

Year.	Waste holding.		Black loam per cent.	Black sand per cent.	Red loam per cent.	Red sand per cent.	Rainfall, 1st October to 31st December.	Wells.
	Wet.	Dry.						
	8	9	10	11	12	13	14	15
	ACS.	ACS.						
1298	4,294	28,679	36·34	·68	16·42	46·56	13·41	..
1299	5,773	28,106					8·63	..
1300	7,562	39,192					6·00	..

The rainfall in this taluk was only 6 inches in the north-east monsoon; the fall in November was only 2·35 inches, and that in December only ·80, so that on the sandy soils of the taluk the cereals had but small chance.

15. The crops for the current fasli and the probable outturn are shown in the following table :—

Crop.	Cultivation in		Probable outturn in fasli 1300 in annas.
	Fasli 1299.	Fasli 1300.	
	ACS.	ACS.	
Paddy	7,940	3,927	4 annas.
Ragi	7,158	8,684	10 ,,
Cumbu	10,571	12,455	6 ,,
Cholum	15,382	5,490	4 ,,
Samai	30,493	19,428	5 ,,
Varagu	4,379	1,924	5 ,,
Other cereals	2,493	2,613	4 ,,
Horsegram	9,200	11,514	6 ,,
Other pulses	4,156	1,499	4 ,,
Cotton	20,129	18,588	8 ,,
Miscellaneous	17,266	4,412	4 ,,

16. The amount that has withered is the next question. Not above 2,000 acres of wet land cultivated with wet and dry crop will produce at all and not above a half crop (8 annas) on that area. Hence the total outturn cannot be more than would be yielded by a one anna crop on the whole wet area, and probably is less. Little of the current crop will yield in Sankarnainárkoil taluk except that watered by wells; the number of wells in the wet lands of this taluk is 346, and may irrigate about 700 acres. In many villages my notes show that every case was withered or withering from crop hardly above ground to that preceding the ear. Nearly every tank was stone dry. Some few have small pools in the deep bed, and not one had ever received half a supply; most had much less.

17. As regards dry crops; samai and horsegram generally in the red soils with cumbu and cotton in the black and loamy area were the only standing crops; samai was everywhere in the harvest stage, and 4 annas must be considered the outside yield all over; thousands of acres would produce from nothing to perhaps the seed sown; horsegram the same; cumbu would produce from 4 to 6 annas; cotton was healthy, but required rain, and in many places it was being watered from wells. Cholamnâttu, grown for fodder, was everywhere a mere shadow of its proper growth and had largely failed. It has been estimated that about half (43,000 acres) of the dry area has either withered, will wither, or has produced not above a 4 anna crop: 16,000 acres of cumbu and samai may have yielded 6 annas. It is impossible to state these large areas accurately, as kurnams' statements are wholly misleading on these occasions. The only redeeming feature of the season is that the amount of fodder from the straw of the various crops would be very considerable; it is very different from the corresponding season in 1876 when both straw and grass utterly failed: I should say that there is nearly a half crop of fodder from the straw of the several crops.

18. The wells in this taluk redeem it from absolute loss; they are 5,431 in number and irrigate 12,754 acres as first crop and 8,085 as second crop. The wells are most numerous in the worst areas, as in Coimbatore the people simply could not live without them. The produce of the first crop, which had mostly been reaped at my visit, had been fairly good and was chiefly ragi, chillies, &c., the latter crop being abundant in the south and very productive. Both these crops will be followed now by cholum when the water is sufficient. This, however, is not always the case; many of the wells were actually or nearly dry; in many more the water seemed quite insufficient for a hot weather crop, and in nearly all cases the water was comparatively distant from the surface—considering that it was the end of the north-east monsoon—and shallow in depth. But about 5,000 acres may be expected as second crop this year and more if good rain falls.

19. As stated above, it was harvest time at the end of December for all dry and well crops, while the condition of paddy was practically settled. Hence the then condition was the final condition; no amount of rain would benefit any crops except some late sown samai and gram and the cotton. No rain having now fallen, the

condition of all cereals and pulses is irremediable and irremediably bad. Future rain, however, would (1) sustain the 18,588 acres of cotton; (2) put water in the wells; (3) produce pasture; (4) enable considerable areas of dry crops to be sown, chiefly on wet lands, such as gingelly, kadirkanni, &c.; (5) would enable vellarikoy, a sort of melon, to be grown on tank beds. I regret to add that the rain of the 20th and 21st current benefited only the south-west portion of the taluk and did not touch the taluk generally.

20. The present condition of the people so far is all right; harvest and other operations have given some employment; every well supports several people, often several joint families; the produce, even at 4 annas, will maintain the population for three or four months, and probably for longer, at reduced consumption, aided by purchased imports. Some of the people go to the neighbouring black-soil taluks for cotton picking; many go to Ceylon and elsewhere as laborers, and a good number of the Brahmins migrate temporarily to Travancore. But if rain does not fall abundantly by the end of April, there will be very bad times for the taluk. In my fortnight's tour, during which I was at least six hours per day on actual inspection, I saw no cases of distress, and all persons looked to be in their usual physical condition.

21. *Remissions.*—The methods of relief so far are (1) the concessions recently granted of growing dry crops on wet lands at dry rates even if water comes into the tank and is used, and of growing vellarikoy on tank beds; (2) the suspension of the demand till after jamabandi. The third method is that of remission. On wet lands this is provided for by the ordinary rules. On dry lands I recommend a remission of 50 per cent. on the holding, exclusive of areas cultivated with cotton or irrigated by wells. In 1887 a remission of 25 per cent. was allowed (Board's Proceedings, No. 268, dated 10th February 1887), and in that year the failure was not so great as in this year, nor did it succeed a poor year. I have hesitated whether to apply this relief to the whole taluk, as I was informed that the western and the north-eastern areas were better than the remainder, but after receiving Mr. Bedford's report of the west and personal inspection of the north-east, I am not of opinion that any difference should be made; the soils are better and the outturn slightly better, but then the assessment is far higher. Moreover, the cotton is chiefly grown in these areas, and as that is to be charged, the cereal and pulse area should get remission equally with those tracts where the soils are poorer. The jamabandi of this taluk I am to do myself, and I shall be careful in applying the rule. Road-cess and village service cess will be collected as usual. The result for this taluk will be a remission of Rs. 50,000 to 60,000 on wet lands, and Rs. 25,000 on dry after allowing for cotton and well lands. Measures of positive relief will be discussed below, as also the case of the zemindaris in the taluk.

22. *Nánguneri taluk.*—This taluk has been inspected by myself, the Divisional officer, the Assistant Collector and the Tahsildar. It lies in the extreme south of the district, and is a dry sandy tract with numerous rain-fed tanks scattered over its surface and some very large ones fed by streams from the hills. The following table gives various particulars:—

Year.	Population.	Class.	Assessed area.	Holding.	Cultivated area up to 31st December.	Waste.	Black soils.	Red loam.	Red sand.	Rainfall from 1st October to 31st December.	Wells.
							ACS.	ACS.	ACS.	IN.	NO.
1298		Wet ..	..	29,839	27,493	2,346				34·35	
		Dry ..	..	227,389	104,591	122,798					
1299	174,347	Wet ..	..	29,914	26,303	3,611	140	28,555	28,760	9·77	2,620
		Dry ..	..	231,577	107,853	123,724	7,890	1,363	201,364		
1300		Wet ..	..	29,914	20,888	9,026				9·97	
		Dry ..	..	231,577	91,344	140,233					

It will be seen that practically the whole area is sand of the very poorest description fit only for low class cereals and pulses and for palmyrahs ; three-fourths of the whole dry area is assessed at 4 annas. Varagu and horse-gram are very widely cultivated, and very little else will grow in many parts. The cultivated wet area this year is only 80 per cent. of the holding as against 92 per cent. in 1298, while dry is 39 per cent. as against 45.

23. The following table gives the cultivated area with the probable outturn :—

Soil.	Total cultivated area.	4 to 8 annas actual.	16 annas actual.	4 to 8 annas probable.	16 annas probable.	Withered and withering.
	ACRES.	ACRES.	ACRES.	ACRES.	ACRES.	ACRES.
Wet	23,847	3,287	482	4,596	1,034	14,448
Dry	92,840	12,888	71	69,445	163	10,273

This is the estimate of the local officers, but from my inspection of the samai stubble and the standing horse-gram, I consider that the 4-anna yield will be far more prevalent than the 8 anna ; even the cumbu on the very small area of black soil is poor, and I saw late sown cotton not above two or three inches high which can never yield a pound of lint per acre. Moreover, as regards withering dry crops, the 10,273 acres applies exclusively to varagu, every acre of which will fail, as it is sown last of all crops with the hope of rain in January, while I saw considerable areas of horse-gram which would certainly produce nothing. Even palmyrahs are dying in considerable numbers as mentioned above (paragraph 8). I do not place the condition of this taluk much, if at all, above that of Sankaranainárkoil ; though the north-east portion of this taluk has a considerable area of successful wet crops, this is balanced by the black-soil of Sankaranainárkoil, while the sandy tracts of Nanguněri are fully as poor in quality and crop as those of Sankaranainárkoil. The number of wells is only 2,620, irrigating 5,025 acres of first crop and 2,904 of second crop. The rainfall was, as elsewhere, very light ; from October to December only 9·97 inches fell, of which only 3·35 were in November and 2·97 in December. A shower on the 12th December greatly benefited the tract around and north of Nanguněri, but there was a mere drizzle elsewhere, and since then nothing but 10 cents on the 21st January.

24. In this taluk the best irrigation ordinarily is the river-fed, viz., that supplied from the hills which border the west of the taluk. This year these rivers almost wholly failed ; a very short supply was received in the tanks at the foot of the hills both in the first and second crop seasons, while great tanks, such as those of Nanguněri and Vizianarayanam with 1,300 and 1,600 acres, respectively, did not receive even 1 anna of water in the whole year. The small rain-fed tanks depending on local rainfall have been more fortunate, and being generally more precarious in supply, have occasionally a few wells in their lands, which, as in Mulakaruppattu and the neighbourhood, have saved the bulk of the wet crops. It is the kar crops on a portion of the western area and the rain-fed crops on the north-east area which account for the bulk of the wet crops this year. The comparatively large area of cultivation in spite of the poor supply is accounted for by the practice which obtains of cultivating the wet crops dry in the first stage, that is, the lands prepared and sown with the early rain of the north-east monsoon even without water in the tank in full expectation that the tank will be supplied ; if water comes, well and good, if not, the crop perishes. In Nanguněri and Vizianarayanam this year much the greater portion of the large holdings—2,900 acres—was thus cultivated, but from personal inspection I can say that not nearly 100 acres will come to crop, and that only where there are wells ; the rest of the cultivation is from a span to two feet high and quite withered. Throughout the taluk the tanks are stone dry save a very few in favored localities which still have small pools ; not a single tank filled during the year ; many got little or nothing.

25. The condition of palmyrahs requires notice ; considerable areas are undoubtedly perishing ; but as explained these are on tracts with hard sub-soils. The fact, however, shows the abnormal nature of the season. As regards the non-withering trees, the sap seems to be deficient, and grave fears are everywhere expressed that the yield will be very short ; everywhere the expression is "even our palmyrahs have played us false." As the sweet toddy is, during several months of the year, almost the sole subsistence of thousands of Shanars, and as the jaggery from the bulk of the juice is their general means of livelihood, the future behaviour of the trees is a matter of anxiety, but on this I will report subsequently.

26. *Remissions.*—Estimating wet waste at 20 per cent. of the holdings and the withered crops at 60 per cent. of the cultivated area, the remissions for wet waste and withered will be about Rs. 1,40,000. As regards dry lands, I recommend the remission of 50 per cent. upon waste and upon the area cultivated with annual crops exclusive of land irrigated by wells ; the remission will probably amount to Rs. 20,000. I ask for dry remission, as I am convinced that this year is one of dangerous scarcity of crops over a very large area and that the estimates of outturn are sanguine rather than gloomy as pointed out in paragraph 23. The village service and road cess should be collected as usual.

27. Matters as regards the above crops are now settled ; rain now would benefit no standing crop save palmyrahs, cotton which requires rain, and a small portion of the sturdier vargu, most of which is already a failure. No other crops could be altered by rain now. But considerable dry areas are prepared for a hot weather crop of gingelly ; should good rain now fall, these areas would be sown ; probably about 10,000 acres ; on wet lands, under the concession granted in Board's Proceedings, No. 9, dated 6th January 1891, for this year, dry crops would be raised and vellerikoy on the tank beds.

28. The bodily condition of the people so far is good enough ; I paid particular attention to their appearance and saw no signs of privation. The crops obtained and the work in hand will keep the people going for several months. But in the absence of good rain in March and April, there will be grave scarcity. If the palmyrahs do not fail, the Shanar population will not suffer materially, while many of the Maravars and others will emigrate temporarily to Ceylon as usual and to Travancore. Further measures of relief will be discussed below.

29. *Srivilliputtur taluk.*—This taluk lies on the north of the district bordering on Madura ; rather more than half of it is black soil of moderately good sort. Its irrigation is partly river-fed and partly rain-fed, the former predominating. The following table gives particulars :—

Year.	Population.	Class.	Holding.	Cultivated area up to 31st December.	Waste.	Black-soils.	Red loam.	Red sand.	Rainfall from 1st October to 31st December.	Wells.
			ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	IN.	NO.
1298	163,608	Wet ..	22,382	19,377	3,005	15,757	6,218	3	17·99	10,816
		Dry ..	152,433	139,114	13.319	87,837	49,157	12,679		
1299		Wet ..	22,444	18,034	4,410				11·88	
		Dry ..	156,039	142,988	13,051					
1300		Wet ..	22,462	17,053	5,409				8·60	
		Dry ..	156,923	139,522	17,401					

The black soils lie almost entirely on the eastern side of the taluk. The central, south and south-western tracts are sandy and poor, and, as in Sankaranainárkoil, it is these latter areas which cause anxiety.

30. The next statement gives particulars for crops and the probable outturn :—

Crop.	Cultivation in		Probable outturn in fasli 1300 in annas.	Remarks.
	Fasli 1299.	Fasli 1300.		
	ACS.	ACS.	ANNAS.	
Paddy	20,201	16,420	4 to 8	Includes first crop. The yield refers only to areas that will produce; about 7,500 are withered and will produce nothing.
Ragi	16,321	17,588	4 to 8	
Cumbu	13,690	20,039	4 to 8	
Cholum	11,908	10,224	4	About 10,000 acres have withered.
Samai	20,273	19,000	2 to 4	
Varagu	16,590	14,000	4	
Other cereals	5,312	4,499	2 to 4	
Horse-gram	4,113	3,500	2	
Other pulses	4,361	3,000	4	
Cotton	42,078	43,244	2 to 4	Mostly, but not all, on black soil.
Miscellaneous	14,502	12,704	4 to 8	

The Tahsildar's estimates only relate to areas that will have a crop at all and take no account of withered or withering areas. The Divisional-officer in pointing this out states that 2,500 acres of paddy have already failed, and 5,000 more are in a critical condition : this was written 8 days ago, and there has been no rain, and none is probable ; this area is now past hope. An average outturn of 8 annas on the area which actually yields is as good as can be expected. The remainder must be classed as withered. The other estimates are fairly correct; but cotton is too low. The 40,000 acres on black soil will probably produce a 6-anna crop even without further rain, and a larger crop if rain falls. I may here state that on testing black cotton soil even in droughty tracts, I found that at not more than 5 or 6 inches below the surface the soil was still so damp as to form into balls on pressure with the hand. Hence cotton plants and pulses are practically safe in nearly all seasons if they can get a good start. Cereals however, on the same soils, have less chance, as they root less deeply. Briefly, as regards the present crop, about 5,200 acres of rain-fed wet are safe, while 7,500 acres are lost : 1,600 acres have grown a dry crop. About 1,500 acres were under first crop. On dry lands about 10,000 acres have entirely failed. About 57,000 acres have produced, or will produce, from 2 to 4 annas ; and about 32,000 from 4 to 12 annas including well lands, while 40,000 acres of cotton on black soil will probably yield from 6 to 8 annas at least.

31. The brightest feature about this taluk is its well system. It has no less than 10,816 wells in operation irrigating 19,696 acres first crop and 12,100 second crop. The yield in the last crop was normal, being at least a 12-anna crop ; for the coming hot weather crop, the area may be slightly below the normal, as all the wells are not fully supplied. They are fairly distributed over the taluk, only 24 villages out of 89 having less than 50 wells ; 14 have above 200 and 1 has 763. It is also to be remembered as in Sankaranainárkoil that, whereas the area under wells, as well as ordinary wet and dry, is given only for the Government lands, the population includes that of large zemindaris which also have many wells ; hence the total pretection to the population is not gauged by the number of wells here given.

32. The villages that may be called fair are 16 in number, and lie chiefly on the north-west and west of the taluk, principally in the Watrap valley which, in the heavy rains of the end of October, received excellent supplies of water. Lying among and near the hills, they get better rain, and have better soil than the open plains, and I have just learnt that the valley had about half an inch of rain on the 21st current when the rest of the taluk had nothing. Forty-four villages on the east and south-east of the taluk are classed as middling, having large areas of black cotton soil, and a crop of from 6 to 8 annas. Twenty-nine villages in the centre, south and north-west of the taluk are bad, having poor soil and scanty rainfall, while irrigation proved almost a total failure in this tract.

33. *Remissions.*—Wet remissions will amount to at least Rs. 70,000 with a maximum of Rs. 80,000. The Deputy Collector does not incline to grant dry remission ; but his only reason is that it would be difficult to determine the area without

causing grumbling amongst those not favored. But it is quite easy to say that the 16 villages distinctly entered as bad shall have remission as also such of those entered as middling, as, on further inquiry, prove to be also bad. Roughly speaking the above 16 villages and all the red soil areas south of the Watrap valley should all get 25 per cent. remission on the holding exclusive of well irrigated lands. The amount will not exceed Rs. 10,000.

34. Zemindari tracts which lie especially within Tenkási, Sankaranainárkoil and Srívilliputur taluks are principally those of Uttumalai, Chokkampatti, Sivagiri and Sétúr, besides minor estates. These share in the misfortunes of those three taluks; Uttumalai, though largely in Tenkási, is in the easterly portion, and is as bad as the neighbouring part of Sankaranainárkoil in which many of its villages lie. Chokkampatti lies immediately south of Sankaranainárkoil Ayan villages, while Sivagiri and Sétúr lie on the west and north-west of Sankaranainárkoil taluk and partly in the south and south-west of Srívilliputur. Their tanks are as empty and their dry fields as miserable as those of the Ayan villages. The population given in paragraph 11 *supra* includes that of the zemindari tracts. All the zemindars have requested that the demand may simply be delayed, so as to avoid the need for borrowing at high interest. I think that some relaxation should be allowed. Sivagiri has, by dint of careful management and great economy for many years, succeeded this very month in clearing off great ancestral debts, and to borrow now at high interest is to throw him back. Another minor estate has already, I know, borrowed a sum equal to three-fourths of the peshkash, as the lenders will not deal in small sums except at exorbitant interest. The peshkash is demanded according to the old kistbandi, beginning with December, and in the absence, sometimes total absence this year of waram on wet lands, zemindars will have much difficulty in paying. To squeeze them now means squeezing their ryots, or else heavy borrowing at high interest. The estates are all good and solvent, and if the Government demand could be deferred, interest at $6\frac{1}{4}$ per cent. being charged on the balances, there would be no harm in allowing some delay. For the present, this is the only relief that can be given in zemindari tracts. Should distress intensify, their people will share in the work and relief available for the Government population.

35. This concludes the examination of the taluks of group III. As this report is urgently called for, I submit it without the report on group II, which will follow in a few days, not being emergent. I proceed to state the relief required in both groups.

36. (1) *Remissions.*—Both wet and dry remissions are proposed for group III. Only the usual wet remission is necessary in group II. The following table abstracts probable remissions :—

Group.	Taluks.	Wet remissions.	Dry remissions.	Total.
		RS.	RS.	RS.
II	Tinnevelly		(Not made up).	
	Tenkarai	70,000	..	70,000
	Ambásamudrum	30,000	..	30,000
	Tenkási	55,000	..	55,000
III	Sankaranainárkoil	60,000	25,000	85,000
	Nánguneri	1,40000	20,000	1,60,000
	Srívilliputur	70,000	10,000	80,000
		4,25,000	55,000	4,80,000

The remissions for the district will be about $5\frac{1}{2}$ lakhs, as, in Tinnevelly, there is much failure under certain large and small tanks fed by the Chittár and under rain-fed tanks; in Satúr, there will also be some remission.

37. (2) Concessions have been granted for 6 taluks by Board's Proceedings, No. 9, dated 6th January 1891, subsequently confirmed by Government (*a*) by permitting dry cultivation in January and February on wet lands at dry rates even though water comes into the tank and is used; (*b*) by allowing the growth of Vellarikkay, &c., on tank-beds; (*c*) by granting the postponement of the demand till after jamabandi : these boons, anticipating everywhere the ryots' requests, have been received

with great pleasure, and are of great value. If rain comes, they will save a great many from distress. I beg now to extend them to Tinnevelly taluk, as that is in the same position as the other taluks of the group. The postponement of the demand being only on such areas as are found to be in a very bad way, will not affect the Támbraparni valley, but only the tracts under inferior irrigation. I would also suggest (*d*) that in the above seven taluks dry crops already grown on wet lands either in the past south-west or north-east monsoon be charged dry rates only, even if water were used, provided that the water-supply was insufficient for a general paddy crop. In certain areas, the ryots wisely abstained from attempting paddy with the scanty supply of water available, and it would be very hard to charge wet rates in such cases; the highest dry rate of the village might be substituted. I have seen many cases of successful ragi, when the surrounding paddy was absolutely withered and wholly unproductive either to the ryots or to Government.

38. (3) Requests have been made for admitting cattle to reserved forest areas, as fodder and pasture are scanty, and the need pressing. I have consulted the District Forest-officer on the point. At present we have (*a*) reserved forests on the higher slopes, grazing on which is allowed on a fee of 2 to 4 annas per head of cattle, subject to revocation if fires occur, and if the graziers do not do all in their power to assist in putting out fires and detecting offenders; (*b*) reserved lands on the lower slopes in which grazing has, at present, been stopped owing to frequent and evidently wilfully caused fires, and to the negligence of the graziers; (*c*) reserved lands which are open free as usual. The District Forest-officer proposes to continue the conditions as regards (*a*) reserved forests, only making the licenses merely *liable* to revocation in case of fire, instead of being necessarily revoked as now: as regards (*b*) he would open the now closed lands on similar conditions and on payment of a fee of 2 annas per head; (*c*) lands, of course, remain free as at present. I do not think that anything further need be conceded. As Mr. Brazier points out, the fee is very small and much less than zemindar's charge, while the cattle are, to a great extent, cattle bred for sale and not really ryots' cattle.

39. (4) The question of relief by works and dole remains to be considered. At present, there is no immediate danger. Agricultural operations are still in hand, and the crops, short though they are, will feed the people for some time. There will, however, very shortly be little for the laborers to do, and if rain holds off, ryots will retain their stores for themselves, and turn the laborers adrift. There are always, moreover, many casual laborers even in villages. For the present, the carrying out in this year of the minor irrigation works sanctioned for next year will suffice, and within a fortnight I shall submit for sanction a further list drawn from the statement of famine works prepared annually, and from which Divisional officers are now engaged in selecting and estimating. The amount sanctioned for minor irrigation works for 1891-92 for the whole district is Rs. 47,172, out of which Rs. 19,936 belong to the 4 taluks of Tinnevelly, Sankaranainárkoil, Srívilliputur, and Nángunéri. Rs. 3,000 have been allotted by Board's Proceedings, No. 41, dated 21st January 1891, and if Rs. 17,000 more be allotted, I can certainly do work to this amount before the 31st March. With this amount and Rs. 7,000 previously allotted for monsoon damages by Board's Proceedings, No. 7412, dated 21st November 1890, and No. 7755, dated 5th December 1890, and the allotments under the Land Improvement Loans Act, I can do for the present.

40. (5) The only other method of present relief is in the grant of loans under the Land Improvement Loans Act. I am urging by all means the distribution of loans for *boná fide* improvements, chiefly wells, but it is very difficult to distribute money, considering the numerous urgent duties devolving on all classes of officers, the wide areas to be traversed, the few men available for inquiring, the completeness of the securities required and the necessary formalities. It is easy to distribute money, but not to distribute it with due scrutiny in these times of census and other inquiries and duties. I am not likely to require more money during the current year than is now at my disposal, in addition to the Rs. 7,000 asked for in my letter, No. 16, dated 12th January 1891.

Resolution—dated 6th February 1891, No. 67.

The above report on the condition and prospects in the Tinnevelly district will be submitted for the information of Government with reference to G.O., dated 16th December 1890, No. 7772. The report contains a full and careful analysis of the rainfall, cultivation, and prices in the different taluks and of the results of the personal inspection and inquiry made by the Collector and his Divisional officers.

2. The district is chiefly dependent on the north-east monsoon, the rainfall during this period being on the average almost three times the quantity registered during the south-west monsoon. In the current year the rainfall from October to December amounted to only 9·93 inches against an average of 19·22 inches for the same period for ten years: the fall in the south-west monsoon was also less than the average (5·52 against 7·36 inches). The total fall registered to date is the lowest in the last twenty years with the exception of the great famine year 1876. It was not only small in quantity, but was short in the cultivation months, and the tanks generally received little or no supply. A large extent of wet and dry lands was consequently left waste, while a considerable portion of the area that was cultivated yielded generally a poor crop.

3. The following statement shows the rainfall and cultivation in each taluk as compared with the average of ten and three years respectively:—

Taluk.	Period.	Rainfall from		Ryotwar cultivation up to 31st December.	
		April to September.	October to December.	Dry.	Wet.
		INCHES.	INCHES.	ACRES.	ACRES.
Sankaranainárkoil	Average	6·65	17·27	94,809	9,675
	1890-91	7·63	6·00	83,563	6,971
Nánguneri	Average	4·95	20·63	114,210	33,097
	1890-91	5·10	9·97	96,063	23,875
Srívilliputur	Average	8·73	18·71	140,924	19,995
	1890-91	7·50	8·60	141,023	18,532
Ambásamudram	Average	7·78	23·96	33,444	51,367
	1890-91	2·55	12·40	27,059	45,929
Tenkási	Average	15·49	22·52	52,264	29,745
	1890-91	8·12	7·67	46,065	20,336
Tinnevelly	Average	6·42	20·54	49,188	42,178
	1890-91	2·87	10·35	45,073	39,820
Tenkarai	Average	4·02	19·45	93,744	56,732
	1890-91	5·35	9·80	83,906	44,510
Sátúr	Average	10·59	15·04	135,998	3,470
	1890-91	11·05	8·70	136,682	3,435
Otapidáram	Average	4·97	16·84	123,492	2,100
	1890-91	3·68	13·49	128,387	2,283
District average	Average	7·36	19·22	838,073	248,359
	1890-91	5·52	9·93	787,821	205,691

4. Mr. Nicholson divides the district into three groups with reference to the effects of the season; the first, comprising the black-cotton soil taluks of Otapidáram and Sátúr on the north-east, with a population of 420,600, fared better than the rest of the district; these taluks on the whole had a better rainfall, and the extensive cotton crop is so far in good condition and with another fall of rain will probably yield a fair outturn. The second group consists of the river-irrigated taluks of Tenkarai, Tinnevelly, Ambásamudram and Tenkási with a population of 760,000. This tract has suffered very considerably from deficient rainfall, but not to the extent of "absolute scarcity," owing chiefly to the existence of large wet cultivation under the Támbraparni and Chittár rivers. The occupied wet area in 1889-90 under these sources is shown on the margin. It is anticipated, however, that there will be very heavy wet remissions. The third group comprises the taluks of Srívilliputur, Sankaranainárkoil and Nánguneri with a population of 519,000. They contain a very large proportion of poor soils—red loam and sand—especially the last and

	Occupied area of Government and Inam.	
	1st Crop.	2nd Crop.
	ACRES.	ACRES.
Tenkárai	38,200	34,400
Tinnevelly	24,500	21,000
Ambásamudram	16,600	15,700
Tenkási	6,200	5,800

have suffered most from the failure of the rains, so much so that Mr. Nicholson thinks that they " are distressed to the verge of scarcity which may devolop into dangerous distress if the next three months do not bring good rains." The rain which fell on the 19th and 20th of last month was slight in this portion of the district and did not do much good. The taluks suffered also during the previous year owing to the failure of the north-east monsoon, and in fasli 1296 (1886-87) also, the season was very unfavorable in the first two taluks and dry remissions were granted to the extent of Rs. 19,700, being 25 per cent. of the demand in Sankaranainárkoil. The wet remissions in both the taluks in that year amounted to nearly 1¼ lakhs. In the current year, the remissions in this tract are estimated at Rs. 2,70,000 for wet and Rs. 55,000 for dry lands, and but for the existence of numerous wells, the two taluks mentioned above would, the Collector states, " be within touch of famine."

5. The cultivation in the above tract shows a large decrease as compared with the two previous years. In Sankaranainárkoil the soils are extremely poor and unproductive, the bulk of them being assessed at four and six annas. The taluk was very fully inspected by the Collector, the Divisional officer and the Assistant Collector; nearly every tank was found dry, and it is estimated that out of the total cultivated wet area of 6,248 acres not above 2,000 acres will produce at all, and that the total outturn cannot be more than would be yielded by a one-anna crop on the whole wet area, while " about half (43,000 acres) of the dry area has either withered, will wither or has produced not above a 4-anna crop." It is stated that cumbu (12,500 acres) would produce from 4 to 6 annas, but that samai and horse-gram, occupying nearly 31,000 acres, would produce at the outside a 4-anna crop over the total area, though many thousands of acres would produce from nothing to perhaps the seed sown. Cotton, however (18,500 acres), is in a fair condition but requires rain. The taluk abounds in wells which are fortunately most numerous in the worst areas; they number 5,431 and irrigate some 12,700 acres as first crop and 8,000 acres as second crop. The yield of the first crop was fairly good this year, and it is anticipated that a second crop would be grown on about 5,000 acres. The unexpected rains which fell on the 20th and 21st of last month benefited only the south-west portion and did not touch the taluk generally. The remissions are estimated at from Rs. 50,000 to Rs. 60,000 for wet and Rs. 25,000 on dry, at 50 per cent. on the holdings exclusive of areas cultivated with cotton or irrigated under wells.

6. In the Nánguneri taluk, the cultivated wet area amounts to only 80 per cent. of the holding as against 92 per cent. in 1888-89, while the dry is 39 per cent. against 45. The soil is chiefly sandy, three-fourths of the dry area being assessed at only four annas per acre. Of the wet area cultivated, viz., acres 23,000, the crop on nearly 14,500 acres has either withered or is withering. On acres 7,800, the yield is estimated at from 4 to 8 annas only. As regards the dry crop, the Collector states that the whole of varagu (about acres 10,200) will fail, as also a considerable portion of horse-gram. Over 82,000 acres are returned by the local officers as likely to yield from 4 to 8 annas, but from the result of his personal inspection, Mr. Nicholson considers that the 4-anna yield will be far more prevalent than the 8-anna. Even the palmyras which are numerous in this taluk are dying in considerable numbers. The rains which fell in the third week of January registered only 10 cents in this taluk. The wet remissions will be large, not less than Rs. 1,40,000, and the dry remissions about Rs. 20,000 at 50 per cent. on the waste and on the cultivated area excluding palmyras and areas under wells.

7. In the Srívilliputur taluk, the failure is chiefly confined to the central, south and south-western portions which are sandy and poor. Rather more than half the area of the taluk is black soil of moderately good sort, and the irrigation is partly river-fed and partly rain-fed. Of the latter, about 5,200 acres are safe, while 7,500 acres are lost; 1,600 acres have grown a dry crop. On dry lands, the crop on about 10,000 acres has entirely failed; about 57,000 acres have produced, or will produce, from 2 to 4 annas and about 32,000 from 4 to 12 annas including well lands, while 40,000 acres of cotton on black soil will probably yield from 6 to 8 annas at least. A very large area is protected by wells, which number no less than 10,800, irrigating about 19,700 acres for first and 12,100 acres for second crop. The yield in the first crop was up

to average, at least a 12-anna crop. The area under the coming hot weather crop may be slightly below the normal as the springs are failing in some of the wells. The remissions in this taluk are estimated at from Rs. 70,000 to Rs. 80,000 on wet lands and about Rs. 10,000 on dry lands at 25 per cent. excluding lands under wells.

8. The total remissions in the three taluks which are most affected will amount to Rs. 3,25,000 and in the rest of the district to about Rs. 2,20,000, making a total of about Rs. $5\frac{1}{2}$ lakhs as shown below :—

Group.	Taluks.	Wet remissions.	Dry remissions.	Total.
		RS.	RS.	RS.
II	Tinnevelly	Accounts not made up.		About 70,000
II	Tenkarai	70,000	..	70,000
II	Ambásamudrum	30,000	..	30,000
II	Tenkási	55,000	..	55,000
III	Sankaranainárkoil	60,000	25,000	85,000
III	Nánganéri	1,40,000	20,000	1,60,000
III	Srivilliputur	70,000	10,000	80,000
		4,25,000	55,000	5,50,000

Dry remissions are proposed only in three taluks forming the worst group ; the recommendations are fair and will be sanctioned. In the case of wet crops, remissions may also be granted where the yield is 2 annas and less.

9. Owing to the failure of two successive harvests and to deficient rainfall in one or other of the monsoons in the two preceding years, the prices of food-grains have been rising steadily in this district, and the average for the past five years exhibits a large increase as compared with the average of the five preceding years. There was a very considerable rise of prices in 1889-90, and they have risen still higher in the year under report as shown below :—

	Rice, 2nd sort, I. seers.	Cholum, I. seers.	Cumbu, I. seers.	Ragi, I. seers.
Scarcity rate ..	8·5.	13·8.	12·5.	13·7.
Average of 3 years ending 1875-76, *i.e.*, before the great famine ..	12·61	23·57	22·40	25·35
Average of the last 5 years ending March 1890	13·2	23·3	20·5	24·8
Average of the previous 5 years ending March 1885	15·2	28·9	27·3	30·8
In 1889-90	12·2	22·4	18·6	23·8
Current year (1890-91) April	10·8	19·0	16·0	19·7
Current year (1890-91) August	9·8	16·8	14·6	18·1
Current year (1890-91) December	10·4	16·1	15·5	19·6
During week ending 31st January 1891	10·48	15·74	16·06	17·99

The highest price reached was in July and August when the partial failure of the south-west monsoon caused a scare amongst the merchants and led them to hold back their stocks. The rains which fell in September brought down the prices a little, but the fall was of short duration. Taking the latest prices reported for the week ending 31st January, and comparing them with the average of ten years, it is observed that the price of second-sort rice shows an increase of 26 per cent. and that of cholum, cumbu and ragi an increase of 40, 33 and 35 per cent., respectively. On the average of the past year (1889-90) which was a period of very high prices, the increase is 14 per cent. in the case of rice, and 30, 14 and 24 per cent , respectively, in the case of the dry grains mentioned. Compared with the scarcity rates, however, there is still a fair margin, ragi and cumbu being cheaper by 31 and 28 per cent., and rice and cholum by 23 and 14 per cent., respectively. Rice is the most important staple in the district, covering about 278,400 acres out of a total of 834,800 acres under food-grains, excluding pulses. Cumbu follows with 182,000 acres, while cholum and ragi occupy 107,600 acres and 51,300 acres, respectively. The average area under varagu is 72,600 acres, but the price of this grain is not recorded.

The statement in paragraph 9 above shows a very great increase during 1890-91 in the price of rice as compared with the prices of the previous ten years. The ten years in question have however been on the whole good years, and the marginal statement which gives the average selling price of rice at the head-quarters of the district for the 30 years ending 1890 will show that the present prices are by no means unprecedented.

Years.	Price of second-sort rice.	Years.	Price of second-sort rice.	Years.	Price of second-sort rice.
	I. SRS.		I. SRS.		I. SRS.
1861	10·9	1871	14·09	1881	13·3
1862	12·3	1872	13·19	1882	16·8
1863	11·3	1873	13·8	1883	18·
1864	11·6	1874	10·12	1884	13·4
1865	8·4	1875	12·84	1885	12·1
1866	8·5	1876	11·03	1886	14·2
1867	8·2	1877	7·84	1887	12·9
1868	10·3	1878	8·56	1888	13·12
1869	10·6	1879	10·38	1889	12·5
1870	10·9	1880	13·96	1890	10·28

10. The imports of grain into the district both by sea and by rail are, however, very brisk, and it seems unlikely that prices will rise very much higher than they have been ruling for some time. In the first *six months* of the current year for which statistics are available, the imports by rail into the Madura-Tinnevelly block amounted to over 1,271,600 Indian maunds as against a total of 1,393,000 maunds imported in the *twelve months* of 1889-90 and 1,533,600 maunds imported in twelve months of 1888-89. The imports of grain during the first two quarters of the current year are largely from the Mysore Province, 256,000 maunds, chiefly of ragi, having been imported from that Province as against 54,000 maunds imported during the whole of the previous year. The exports by rail are usually small: they amounted to only 376,000 maunds in 1889-90 and were slightly below one half of this quantity (or 178,000 maunds) in the first six months of this year. The imports by sea from April to December 1890 amounted to 330,600 Indian maunds against only 108,200 maunds imported in the same period of 1889 and against 193,000 maunds imported in the twelve months ending March 1890. The exports do not show any large variation.

11. The great loss of crops over a large area of the district must inevitably cause great distress to the agricultural population, but the Collector, who has thoroughly inspected the worst parts, is satisfied that there is no immediate danger. Cultivation under wells and the harvesting of the standing crops will give employment to the people for sometime, and a considerable proportion of the laboring classes will find ample work on the coffee plantations in the neighbouring island of Ceylon and other places, while the Brahmins will migrate in larger numbers than usual to the Travancore territory as they did in 1886-87 to be fed at the numerous chattrams founded by that state. The physical appearance of the people whom Mr. Nicholson has seen in the course of his extended tour in all directions does not show any signs of distress, and he, therefore, considers that for the present it will be sufficient to carry out the repair of minor irrigation works sanctioned in the next year's budget. The amount applied for for this purpose has already been sanctioned in the Land Revenue Department to which an extract from the Collector's letter was forwarded on the 28th January.

12. The grant of loans under the Land Improvement Act which the Collector proposes to make will also afford considerable relief to the ryots. If the existing establishment is not sufficient to undertake the inquiries necessary for the speedy disposal of the applications as stated in paragraph 40 of his letter, the Collector should telegraph for any additional Revenue Inspectors he may require for the purposes of the inquiry.

13. In paragraph 37 of his letter, Mr. Nicholson recommends that the concession sanctioned in Board's Proceedings, dated 6th January 1891, No. 9, recorded in G.O., dated 14th January, No. 255, be extended to the Tinnevelly taluk. This is approved. He also recommends that dry crops already grown on wet lands in either monsoon be charged dry rates only, even if water were used, provided that the water-supply was insufficient for a general paddy crop. If Government water has been used and the dry crops have yielded a fair outturn in consequence, there seems no reason why Government should forego all charge for water. The Board considers that a rate of Rs. 2 or 1½ per acre prescribed for dry crops raised on dry lands with the aid of

Government water should be charged in the cases referred to in addition to the dry assessment of the land corresponding to its classification as wet.

14. The question of admitting cattle into reserved forests and postponing the collection of peshkash on certain zemindari estates, referred to by the Collector in paragraphs 38 and 34 of his letter, will be considered in the Land Revenue Department.

(A true Copy and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

To the Secretary to Government, Revenue Department.
,, Collector of Tinnevelly.
,, Land Revenue Commissioners.

Order—dated 19th February 1891, No. 129, Revenue.

Miscellaneous.

Telegraphic reports received during the last few days from Tinnevelly show that there was good rain last week over a large portion of the affected area which has materially improved the condition of the district. The cotton crop which is of the utmost importance is reported to be safe, except in a portion of Otapidáram and Tenkarai. The three worst taluks, especially Nánguneri, still require to be carefully watched, and the Government notes that a programme of works is being drawn up for the parts most affected. A selection from the list of Irrigation Works, both major and minor, should be made in communication with the Public Works Department, and estimates should be prepared at once so that there may be no delay in starting them if necessary.

2. The Board's order in paragraph 13 as regards the charging of water-rate on dry crops raised on wet lands, and the concessions as regards forest reserves recommended in paragraph 38 of the Collector's report, are approved.

3. With reference to the Collector's remarks in paragraph 40, authority has already been given to the Board to sanction the entertainment of special Revenue Inspectors for employment in connection with the grant of loans under the Land Improvement Act, and application will now be made to the Government of India by wire for the extension of the special well rules to this district. The Collector's report shows of what value the wells have been in the present unfavorable season, and every endeavour should be made to multiply them by encouraging the ryots to take loans on the easy terms provided by the special rules.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioners of Land Revenue.
,, the Commissioner of Revenue Settlement, Land Records and Agriculture.
,, the Collector of Tinnevelly.
,, the Public Works Department.
,, the Accountant-General.
Copy to the Financial Department.

ORDER—dated 24th February 1891, No. 180 I., Public Works.

Communicated to the Superintending Engineer, VI Circle, who should prepare, in communication with the Collector, lists of works which may be employed for famine relief if necessary.

2. The estimates prepared by the Tank Restoration Scheme will probably suffice for this purpose as far as Srívilliputur is concerned, and in Nánguneri taluk the repairs to Sivalaperi tank will, according to the list submitted by the Superintending

Engineer, afford employment for 300 men for three months, but more estimates should at once be prepared both in this taluk and in Sankaranainárkoil, for the latter of which no suitable estimates appear to be ready.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 24th.

Recd. *Encl.*

G.O., 24th Feb. 1891, No. 180 I.

FEBRUARY.

Irrigation works suitable for famine relief in certain Taluks, Tinnevelly District

Proceedings in the Revenue Department directing the preparation of estimates for —, communicated to the Superintending Engineer, VI Circle, with the necessary instructions.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following paper :—

V CIRCLE.

Negapatam Division.

Irrigation Branch.

Application for additional, and modification of, allotment from grants for works and repairs.

Item number.	Service heads, name of work, &c.	Existing grant.	Modification of allotment applied for. Reduction.	Modification of allotment applied for. Increase.	Remarks.
	43. Minor Works for which neither Capital nor Revenue Accounts are kept.	RS.	RS.	RS.	
	Agricultural works.				
1	River conservancy, original works, major—Corayaur straight cut between Corayaur head and railway bridge near Nidámangalam.	3,000	— 800	..	The Collector has promised to hand over the land for the straight cut as early as possible. It is thought, however, that very little time will be left to spend the allotment before the end of March 1891 after the land has been handed over ; hence Rs. 800 are surrendered from this work.
2	River embankment, original works, minor.	3,796	—1,000	..	A portion of the land required for "Vellayaur left bank in Radanellore limits" has not yet been handed over by the Revenue Department. It is not possible to complete the work within the short space of time that is now left ; consequently Rupees 1,000 are surrendered.
3	River conservancy, original works, minor.	1,956	— 400	..	The Sub-Divisional officer, Tiruturaipúndi, says that this sum cannot be spent under this head before the close of the year ; hence the surrender.
4	River embankment—Repairs ..	18,500	..	1,000	As there are a large number of estimates sanctioned under these heads, it is requested that sums to the extent asked for may be allotted.
5	River conservancy— do. ..	10,000	..	500	
	Total, Surrenders and demands ..	..	2,200	1,500	

Negapatam,
29th January 1891.

(Signed) C. H. T. NORFOR,
Executive Engineer.

No. 54 E.I.

Submitted to the Chief Engineer for Irrigation for early sanction.

(Signed) D. McN. CAMPBELL, Major, R.E.,
Superintending Engineer, V Circle.

16th February 1891.

ORDER—dated 24th February 1891, No. 181 I., Public Works.

Of the amount surrendered from the grants for items 1, 2 and 3, aggregating Rs. 2,200, Rs. 500 are appropriated to meet the demand for item 5 and the balance is held in reserve. The demand of Rs. 1,000 for item 4 has already been complied with in G.O., No. 136 I., dated 16th February 1891.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
„ Superintending Engineer, V Circle.
„ Examiner, Public Works Accounts.
„ Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 24th.

Recd. *Encl.*

G.O., 24th Feb. 1891, No. 181 I.

FEBRUARY.

Funds

Modification of allotments.—Certain — in the Negapatam division, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Read—the following paper :—

G.O., dated 19th February 1891, No. 127, Revenue.

Read—again G.O., dated 14th January 1891, No. 257, Revenue.

Abstract.—Recording, pending further report, Proceedings of the Board of Revenue (Settlement), dated 6th January 1891, Mis. No. 54, submitting letter from the Collector of Coimbatore reporting on the condition of standing crops and calling for certain information from the Collector in connection therewith.

Read—also the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 10th February 1891, No. 77 :—

Mr. Clogstoun.

Read—the following letter from J. STURROCK, Esq., Collector of Coimbatore, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated Coimbatore, 30th January 1891, No. 33 :—

I have the honor to submit the further report on the state of the season promised in my letter of the 20th December last, Reference on No. 2155-Board of 1890.

2. Since May last, I have ridden or driven over a considerable portion of every taluk of the district. I have been in Palladam, Udamalpet, Pollächi and Coimbatore since the beginning of November and I have made a somewhat detailed inspection of several tracts in the Coimbatore taluk after it was known that the December rains had failed. I now propose to start on a tour through Pollächi, Udamalpet and Dhárápuram, beginning with that portion of the Pollächi taluk in which alone the approach of anything like actual distress is indicated in the reports I have received.

3. The Sub-Collector has been round his division making inquiries, and reports that on the whole he is not disposed to think that there will be anything serious, if the next monsoon sets in early enough. The Head Assistant Collector takes a less hopeful view of matters in his division, but it is only with regard to a strip east of Pollächi and west of Palladam that he expresses serious apprehension. The Northern Division Deputy Collector is new to his charge and has submitted no report, but from my own observation, supplemented by statistics, I am satisfied that there is no reason for anxiety with regard to Kollegál, and the Tahsildar of Satyamangalam has submitted a very careful report with regard to his taluk about which, as I expected, he has nothing very serious to report, though certain crops are far from

being good. With these preliminary remarks, I shall proceed to notice each taluk separately, beginning with those in which things are least unsatisfactory.

4. *Kollegál*—

Rainfall in	Average of 5 years.	1890-91.
April ...	1·28	6·49
May ...	4·98	5·98
June ...	2·97	1·30
July ...	2·59	1·05
August ...	3·64	2·90
September ...	6·58	2·15
October ...	6·69	8·10
November ...	2·49	6·85
December ...	1·00	·40
Total ...	32·22	35·22

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet ...	6,471	6,660
Dry ...	60,325	68,765
Total ...	66,796	75,425

Cultivation of food-grains.			Outturn.							
			Harvested.				Standing.			
Grains.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.
Cholum	2,163	1,749	..	..	1,749	..	..	..	..	..
Cumbu	323	119	..	..	119	..	..	..	..	..
Ragi	43,587	47,710	..	..	5,964	41,746	..	..	..	..
Rice	6,892	6,955	..	..	..	..	..	..	6,955	..
Total ..	52,965	56,533	..	..	7,832	41,746	..	..	6,955	..

Prices in seers of 80 tolas.

Grains.	Average of 5 years.	Present.	Scarcity rates of the district.
Ragi	29·40	30·87	13
Rice	15·48	9·80	8

Ragi in this taluk is the staple crop and the food of the people. It is still cheap, being below the average of the last five years, and when this fact is considered and the distribution as well as the amount of the rainfall is looked to, I am satisfied that the Village officers and the Tahsildar have under-estimated the outturn in entering it at 4 annas. In his report the Tahsildar states that the grain has not yet been separated from the straw, but on an average an outturn of 4 annas is expected. Though the estimated outturn under paddy is shown in the 8-anna column, the Tahsildar states in his report that he expects a 12-anna crop for which there is no special column. In October last when in this taluk I had to find fault with the season report for representing things to be worse than they seemed to me to be, and when I bear this in mind and note the prices and the rainfall, I am quite satisfied that there is no ground for anticipating distress in the Kollegál taluk. The price of rice is high, but rice is not the food of the poor, and the high price is not due to any anticipated deficiency in the local outturn.

5. *Bhavâni taluk*—

Rainfall in	Average rainfall of 5 years.	1890-91.
April	1·72	4·22
May	3·32	4·53
June	2·01	2·42
July	2·10	1·75
August	2·55	4·88
September	4·02	1·57
October	6·10	5·17
November	3·45	2·19
December	1·72	·85
Total ...	26·99	27·58

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	1,248	935
Dry	138,848	143,566
Total ...	140,096	144,501

CULTIVATION OF FOOD-GRAINS.			OUTTURN.								Remarks.
			Harvested.				Standing.				
Crops.	Average of 3 years.	1890-91.	20 Annas.	16 Annas.	8 Annas.	4 Annas.	20 Annas	16 Annas	8 Annas	4 Annas.	
Cholum ..	12,213	10,795	48	680	3,391	1,103	..	1,000	2,000	1,180	Crops on 1,393 acres will wither.
Cumbu	72,074	76,348	1,183	12,686	37,197	23,604	..	..	600	519	Crops on 559 acres will wither.
Ragi	15,323	15,830	144	2,165	7,120	2,705	..	500	1,000	1,272	Crops will wither on 924 acres.
Rice	711	208	..	30	18	16	..	30	40	41	Crops on 33 acres will wither.
Total ..	100,321	103,181	1,375	15,561	47,726	27,428	..	1,530	3,640	3,012	

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rates of the district.
Cholum	25·57	20·88	10·50
Cumbu	25·19	22·26	12·50
Ragi	28·20	22·96	13
2nd-sort rice	12·11	9·50	8

The aggregate rainfall was good and there was no month in which the fall can be said to have been very bad. Cultivation of food-grains and of all kinds was above the average, and though prices are rather high they are better than in most other parts of the district. Here however, as elsewhere this year, the local distribution of the rainfall was very peculiar and it will be necessary to give some small remission on the lands under a few rain-fed tanks which did not receive a proper supply. The wet remission is estimated by the Tahsildar at about Rs. 5,000.

6. *Karúr taluk—*

Rainfall in	Average rainfall of 5 years.	Karúr, 1890-91.	Aravakurchi, 1890-91.
April	2·42	2·09	4·14
May	3·04	2·62	4·23
June	1·31	·98	1·42
July	·80	·07	..
August	3·85	4·71	1·83
September	4·07	3·22	1·89
October	4·88	11·51	9·68
November	2·43	8·22	1·87
December	1·69	..	..
Total ..	24·49	33·42	25·06

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	16,266	16,712
Dry	200,070	216,806
Total ...	216,336	233,518

CULTIVATION OF FOOD-GRAINS.			OUTTURN.	
Crops.	Average of 3 years.	1890-91.	Harvested.	Standing.
Cholum	45,038	53,782	Extent 37,133 acres .. .. Dry cholum, 4 to 8 annas .. Garden cholum, 8 to 16 annas ..	16,649 acres. Dry cholum, 4 to 8 annas. Garden cholum, 8 to 16 annas.
Cumbu	106,170	107,820	45,332 acres .. .. .. 4 to 8 annas	62,488 acres. 4 annas and below.
Ragi	9,417	9,341	5,109 acres, 16 annas .. .. 3,841 acres, 4 to 8 annas.	391 acres, 16 annas.
Rice	10,816	12,860	3,554 acres, 8 to 16 annas ..	7,806 acres, 4 to 8 annas 1,500 acres will wither.
Total ..	171,441	183,803		

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rate of the district.
Cholum	22·07	17·83	10·50
Cumbu	27·14	20·67	12·50
Ragi	27·88	20·50	13
2nd-sort rice	15·20	13·57	8

In Karúr rainfall was good during most of the months of the year, but the failure in December has had a bad effect on the standing cumbu and on some 2,000 odd acres of horse-gram. The outturn of the other dry crops does not call for much remark. As regards crops on wet lands, it is too early to form a very definite opinion. The Tahsildar reports that both the Amarávati and the Cauvery have gone down, and the supply in the former is very scanty. But within the last day or two, I have heard of freshes in the Amarávati and of heavy clouds over the Mysore hills. So it is not improbable that matters have improved. It is at any rate improbable that it will be necessary to grant remissions in excess of the Rs. 10,000 estimated by the Tahsildar.

In addition to the grain crops, cotton has been harvested on 3,410 acres with a yield of 16 annas and an outturn of from 8 to 12 annas is expected on another 15,548 acres.

Prices of food-grains are above the average owing apparently to other than local causes, but they are by no means very high and the prospects of the taluk cannot be considered bad.

7. *Satyamangalam taluk*—

Rainfall in	Average rainfall of 5 years.	1890-91.
April	1·55	2·90
May	3·55	1·95
June	1·47	·80
July	1·50	1·20
August	1·46	1·90
September	5·80	·60
October	6·36	6·60
November	4·80	5·00
December	1·49	·40
Total ...	27·98	21·35

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	18,734	18,545
Dry	191,822	194,844
Total ...	210,556	213,389

CULTIVATION OF FOOD-GRAINS.			OUTTURN.							
			Harvested.				Standing.			
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.
Cholum	27,537	33,212	..	1,571	8,512	776	..	5,159	6,984	10,210
Cumbu	112,347	110,425	..	4,400	40,318	50,982	..	..	..	14,725
Ragi	21,374	22,585	672	4,670	4,897	..	..	..	7,546	4,800
Rice	17,643	17,904	6,318	63	..	700	10,512	310	..	..
Total ..	178,901	184,126	6,990	10,704	53,727	52,458	10,512	5,469	14,530	29,735

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rates of the district.
Cholum	27·59	24·36	10·50
Cumbu	31·80	25·44	12·50
Ragi	31·08	26·24	13
2nd-sort rice	14·14	11·76	8

The aggregate rainfall was considerably below the average and the almost total failure of rain in September and the early part of October led to a deterioration in the cumbu crops then standing. When I passed through the taluk a few days before the rains at the end of October, I saw large tracts in which the cumbu crops seemed to me almost past redemption. The heavy rain which followed saved them to a very great extent, but the bulk did not yield more than 4 annas on an average; the rainfall in July and August as registered does not seem specially bad, but there were many parts of the taluk in which there was very little rain during these months as well as in September, and consequently the outturn on more than half of the acreage reaped before December was not more than 4 annas. Similarly the failure of rain in December told on the standing crops. The garden crops both of cholum and cumbu were good, the ragi crop above the ghats was all right, really good crops were obtained on the kar rice lands already harvested and an equally good outturn may

fairly be anticipated from the wet crops now on the ground. A remission of about Rs. 3,000 for shavi in September is all that is thought likely to be called for. There is nothing exceptionally bad in the circumstances of the taluk. Even the prices are comparatively good.

8. *Erode taluk*—

Rainfall in	Average rainfall of 5 years.	1890-91, Erode.	1890-91, Perundurai.
April	2·12	1·70	1·95
May	3·91	5·25	5·16
June	2·06	·30	..
July	2·20	..	..
August	2·05	3·11	4·96
September	3·79	2·09	·51
October	6·55	7·69	6·71
November	3·00	2·08	1·65
December	1·96	·84	·22
Total ..	27·64	23·06	21·16

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	13,705	18,458
Dry	270,173	271,197
Total ...	283,878	289,655

CULTIVATION OF FOOD-GRAINS.			OUTTURN.								Remarks.
			Harvested.				Standing.				
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.	
Cholum ..	60,842	59,527	255	1,371	5,051	974	..	..	..	..	51,876 acres garden cholum, 8 to 16 annas. Dry cholum average 2 annas; some withered.
Cumbu ..	95,767	99,061	594	7,307	45,515	26,148	..	..	6,759	12,738	
Ragi ..	13,721	13,137	293	4,056	6,840	660	303	259	726	..	
Rice ..	12,577	13,349	1,330	6,157	1	..	1,670	4,074	59	37	Crops withered on 21 acres.
Total ..	182,907	185,074	2,472	18,891	57,407	27,782	..	..	..	..	

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rates of the district.
Cholum	20·35	17·55	10·50
Cumbu	23·85	19·08	12·50
Ragi	27·59	20·50	13
2nd-sort rice	14·11	11·76	8

The rainfall in Erode has been rather below the average, but neither the total quantity nor the distribution throughout the year strikes me as very bad. Cultivation of food-grains and of all kinds was rather above the average, and though prices are high, they are still far below scarcity rates. The cholum crop on garden land is reported to be likely to yield an average outturn of 8 to 16 annas, but that on dry

land is not expected to give more than 2 annas. The proportion of the 59,527 acres which comes under each head has not been stated, but the garden cultivation in Erode is very extensive, there being nearly 40,000 acres actually irrigated by wells, and cholum is a favorite garden crop. With regard to the very poor cholum crop expected on dry lands and the probable outturn of from 4 to 8 annas expected under cumbu and cotton, it is to be noted that at page 465 of Mr. Nicholson's Manual it is stated that in Erode the cumbu crop is generally poor, cholum seldom otherwise, and the cotton outturn wretched in quality and quantity. As regards wet crops, the Kalingaroyan channel is reported to be low, but there have recently been freshes in the Bhaváni and there will be no necessity for remissions as the first crop was good. Under some small rain-fed tanks, a remission of about Rs. 1,400 will probably be required.

9. *Coimbatore taluk*—

Rainfall in	Average rainfall for 5 years.	Coimbatore, 1890-91.	Mettupálaiyam, 1890-91.
April	1·32	2·77	4·66
May	2·59	2·25	3·27
June	2·06	·27	·42
July	·94	·12	·64
August	·92	2·10	1·36
September	2·03	·71	·41
October	3·93	8·11	6·70
November	2·81	1·30	1·24
December	1·75	..	2·85
Total ..	18·35	25·85	21·55

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	12,029	11,581
Dry	232,959	261,536
Total ...	245,088	273,117

CULTIVATION OF FOOD-GRAINS.			OUTTURN.								Remarks.
			Harvested.				Standing.				
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.	
Cholum ..	64,860	75,784	673	4,772	18,390	13,680	..	..	12,421	24,843	Crops on 1,005 acres will wither.
Cumbu ..	27,022	31,536	..	..	4,219	12,266	..	..	5,000	10,051	
Ragi ..	42,265	31,938	923	3,384	9,333	14,067	..	..	3,850	381	
Rice ..	5,562	3,604	..	10	95	..	..	..	100	1,140	Crops will wither on 2,259 acres.
Total ..	139,709	142,862	1,596	8,166	32,037	40,013	..	..	21,371	36,415	

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rate of the district.
Cholum	21·57	18·27	10·50
Cumbu	25·28	20·67	12·50
Ragi	26·19	21·32	13
2nd-sort rice	13·12	11·31	8

In Coimbatore the aggregate rainfall was good, but there was too little in June, July and September, and it entirely failed in December according to our statistics ; but I am glad to say that the failure was not so complete in every part of the taluk. This partial local distribution I believe to be a feature of the year and not confined to the Coimbatore taluk. Cultivation was considerably above the average, and the outturn, except in particular localities and with regard to particular kinds of crops, was fair. In illustration of this, I may explain that in certain villages near the hills where there is usually more rain than elsewhere, it is customary to grow dry ragi. This year there was not the usual amount of rain in some of these places, though there was in others, and consequently the dry ragi crops in some villages were practically a failure, but in the same villages a very fair castor-oil crop is being obtained by some of the ryots. Similarly in many places if a man put down cholum or cumbu in August or September, he got a fair crop when he harvested in December or January, but if he waited till after the October rains and then put down horse-gram, he got—in these places in which there was no rain in December—little or no outturn from poor soils and only a very small crop even on the better soils. In some parts of the taluk where rain was more seasonable, very fair crops indeed were obtained, and in these places the crops now on the ground look very well indeed.

The water-supply in the channels and tanks fed by the Nóyil has been insufficient, and it is estimated that a remission of about Rs. 35,000 will be required.

10. *Palladam taluk*—

Rainfall in	Average rainfall of 5 years.	Palladam, 1890-91.	Avanáshi, 1890-91.
April	2·92	2·08	3·25
May	4·15	3·11	1·95
June	1·17	·30	2·00
July	·19	..	·10
August	·97	1·58	1·62
September	3·09	·20	1·85
October	7·05	8·50	8·40
November	2·64	1·15	1·29
December	2·61	..	·55
Total ..	24·79	16·92	21·01

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	3,293	3,947
Dry	352,581	352,707
Total ...	355,874	356,654

Cultivation of food-grains.			Outturn.							
			Harvested.				Standing.			
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.
Cholum	129,003	149,175	..	20,300	62,108	11,086	..	..	33,914	21,767
Cumbu	51,263	53,042	..	300	31,312	21,430	..	..	..	..
Ragi	25,981	21,143	..	12,409	8,734	..	..	..	..	..
Rice	479	401	..	..	208	5	..	11	165	12
Total ..	206,726	223,761	..	33,009	102,362	32,521	..	11	34,079	21,779

• PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.*	Present prices, 1890-91.	Scarcity rate of the district.
Cholum	19·83	17·40	10·50
Cumbu	29·25	24·64	12·50
Ragi	28·20	21·32	13
2nd-sort rice	13·02	10·86	8

In Palladam taluk, as elsewhere, the failure of rain in June and July and between August and the end of October has caused loss to the crops already harvested, while those on the ground have suffered from there being but little rain in November and none in December. Notwithstanding this, owing, in great measure, to the large number of wells, more than half the total acreage under cumbu and cholum yielded 8 annas and upwards, these, it is to be remembered, being also the best lands and consequently the largest normal outturn. The Nóyil tanks and channels did not receive proper supplies and a remission of Rs. 1,500 will be required for waste. The Tahsildar also estimates that a further remission of Rs. 6,500 will be required for wet fields cultivated with ragi, but as the outturn on these was very good, it is probable that they were irrigated, in which case no remission will be required. The cotton (39,875 acres) and horse-gram (15,484 acres) on the ground are reported to be in a bad state, especially the former. This is probably the case as regards the tracts bordering on Polláchi, but much, if not most, of the cotton is on black soils bordering on the Udamalpet taluk where the rainfall in October and November was so heavy as to make it probable that fair crops will be secured on such soils even without further rain.

Prices are high but not very seriously so.

11. *Dhárápuram taluk*—

Rainfall in	Average rainfall of 5 years.	Dhárápuram, 1890-91.	Kángyam, 1890-91.
April	2·29	2·53	5·60
May	2·62	1·50	5·55
June	·25	·15	·60
July	·20	..	..
August	1·13	·45	3·40
September	2·20	·65	1·05
October	5·57	7	8·20
November	2·94	3·10	1·36
December	3·64	..	..
Total ..	20·84	15·38	25·76

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	12,074	10,502
Dry	340,937	326,696
Total ...	353,011	337,198

CULTIVATION OF FOOD-GRAINS.			OUTTURN.								Remarks.
			Harvested.				Standing.				
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.	
Cholum ..	125,552	132,417	1,136	8,860	30,298	20,457	..	9,834	13,809	25,023	Crops on 23,000 acres will wither.
Cumbu ..	85,090	80,914	5	2,465	25,038	9,528	..	..	5,719	37,559	Crops on 600 acres will wither.
Ragi ..	16,618	12,524	87	3,455	6,487	1,000	..	661	834	..	
Rice ..	8,959	8,817	..	1,570	306	110	..	918	1,011	4,202	Crops on 700 acres will wither.
Total ..	236,219	234,672	1,228	16,350	62,129	31,095	..	11,413	21,373	66,784	

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rate of the district.
Cholum	19·27	15·92	10·50
Cumbu	28·17	20·02	12·50
Ragi	31·48	22·75	13
2nd-sort rice	14·87	10·55	8

The aggregate rainfall in the Dhárápuram taluk was much below the average, and in the southern part of the taluk the rains almost completely failed between May and the end of October, so that, except in gardens, there was unusually little cultivation in June and July, and what there was yielded very poor results. The total cultivation of food-grains during the year was very little short of the average owing to extensive sowings after the October rains. Out of 132,417 acres of cholum, as many as 45,480 acres have yielded, or are expected to yield, not more than 4 annas, and 23,000 acres have been a complete failure. The results under cumbu are no better, and 18,100 acres under horse-gram will produce only a nominal crop. As a set off against this undoubtedly bad state of things, it is to be noted that the density of the population of Dhárápuram is less than that of any other plain taluk of the district, while as many as 50,000 acres of the best lands are actually irrigated by wells. The early rice crop under the Amarávati channels was good, but the Tahsildar takes somewhat gloomy view of the prospects of that now on the ground. I think it is premature to speak definitely on this point yet. There have been small freshes within the last few days, and it is not unlikely there may be others. The Sub-Collector proceeds to Dhárápuram immediately.

12. *Udamalpet taluk—*

Rainfall in	Average rainfall of 5 years.	1890-91.
April	2·88	3·98
May	2·40	2·48
June	1·22	...
July	·29	·10
August	·72	·24
September	1·75	...
October	5·94	19·64
November	2·98	·47
December	2·34	...
Total ...	20·52	26·91

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	11,844	12,911
Dry	159,341	148,093
Total ...	171,185	161,004

CULTIVATION OF FOOD-GRAINS.			OUTTURN.								Remarks.
			Harvested.				Standing.				
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.	
Cholum ..	57,328	57,877	..	2,280	10,528	19,439	837	7,289	8,844	..	Crops on 8,860 acres will wither.
Cumbu ..	6,796	4,682	..	611	1,302	1,425	..	39	446	859	
Ragi	6,134	4,783	..	438	1,432	385	63	1,005	1,212	248	
Rice	9,986	10,440	1,346	2,416	66	..	996	4,686	400	...	Crops on 530 acres will wither.
Total ..	80,244	77,782	1,346	5,745	13,328	21,249	1,896	13,019	10,902	1,107	

PRICES in seers of 80 tolas per rupee in January.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rate of the district.
Cholum	21·16	14·08	10·50
Cumbu	26·14	19·25	12·50
Ragi	28·75	19·42	13
2nd-sort rice	14·06	10·55	8

The aggregate rainfall was unusually high, but the distribution was exceptionally bad. There was practically no rain between May and the end of October, when 19 inches fell in about three days. As a consequence, a large portion of the early cholum, the staple food-grain of the taluk, withered altogether, while, a large part of the remainder yielded little more than a nominal crop. The yield on the well lands, however, was good, and these comprise the best red lands of the taluk. Similarly, owing to the failure of the November and December rains, the outturn of the late-sown dry cholum will be very poor except on the best lands, but the garden crops will be very good. Similar remarks apply to the cumbu and ragi crops, but these are comparatively trifling in extent. The outturn on the wet lands under the Amarávati channels and the tanks fed by the Palar channels has been, and is expected to continue to be, good, but it may be necessary to make remissions to the extent of Rs. 5,000, if some breaches cannot be repaired in time to save the crops now standing.

Except under wells, which in the Udamalpet taluk irrigate some 25,000 acres, the food-grain crops were practically a failure, but wells and cotton soils are the main stay of the taluk. The money-producing garden crops, such as tobacco, are particularly good, and, with the very heavy rainfall of October on the rich black soils which there prevail, there is reason to hope that, even if there be no more rain, the outturn on the 31,749 acres now under cotton will be from 8 to 12 annas. On this point, however, it is impossible to speak with certainty. Prices are high, but not approaching scarcity

rates, and the demand for labor is so abundant that coolies are said to be asking higher wages :—

13. *Polláchi taluk—*

Rainfall in	Average rainfall of 5 years.	1890-91.
April	1·86	2·89
May	4·46	·60
June	3·93	1·33
July	3·69	2·05
August	1·63	1·54
September	2·15	..
October	5·20	17·46
November	2·26	1·02
December	1·00	·24
Total ...	26·18	27·13

Total cultivation up to December.

Crops.	Average of 3 years.	1890-91.
Wet	6,880	6,606
Dry	217,558	230,410
Total ...	224,438	237,016

CULTIVATION OF FOOD-GRAINS.			OUTTURN.								Remarks.
			Harvested.				Standing.				
Crops.	Average of 3 years.	1890-91.	20 annas.	16 annas.	8 annas.	4 annas.	20 annas.	16 annas.	8 annas.	4 annas.	
Cholum ..	98,643	1,01,649	..	3,000	42,000	54,033	..	..	..	1,916	Crops on 700 acres will wither.
Cumbu ..	32,153	36,163	..	1,429	9,091	16,704	..	..	..	..	Crops stand on 5,939 acres. More than 50 per cent. will yield 4 to 8 annas ; the rest less than 4 annas.
Ragi ..	11,123	10,600	..	1,378	4,171	4,743	..	..	308	..	Crops on 3,000 acres will wither.
Rice ..	5,775	4,768	..	425	125	212	..	1,500	1,800	476	Crops on 230 acres will wither.
Total ..	1,47,694	1,53,180	..	6,232	55,387	75,692	..	..	..	..	

PRICES in seers of 80 tolas per rupee in December.

Grains.	Average of 5 years.	Present prices, 1890-91.	Scarcity rate of the district.
Cholum	23·31	19·14	10·50
Cumbu	28·75	..	12·50
Ragi	27·88	21·32	13
2nd-sort rice	13·75	10·86	8

The aggregate rainfall was above the average owing to an abnormal fall of over 17 inches in October, but if the fall in that month had been the usual five inches, the total for the year would have been only 15 inches against an average of 26, the short-fall being distributed from May to September and in December. In Polláchi, as in most other taluks, the cultivation of food-grains and of all kinds was above the average, but more than half the acreage of cholum, which is the staple food-grain of the taluk, yielded no more than four annas, and in the eastern part of the taluk, where the sowings were late, the outturn was little or nothing. The cumbu crop was even worse, about five-sevenths of the acreage yielding only four annas or less ; but

both with regard to cholum and cumbu, it is to be remembered that the lands which failed are those which even in good years are the least productive. Owing to the short rainfall in November and the complete failure in December, no good yield is anticipated from the 22,000 acres of horse-gram and the 13,800 acres of cotton now on the ground. The crops on the wet lands are all right, but the acreage under rice is less than usual, and a remission of about Rs. 2,500 will probably be required.

14. In considering the statistics given in the above tables and in the appendices giving the information asked for by the Board, it requires to be borne in mind not only that they are very rough estimates indeed, but that the entry of figures in a particular column does not always mean quite the same thing in the case of one taluk that it does in another. As an instance of the first, it will be seen that in the case of Kollegál, I have given my reasons for believing that the outturn has been under-estimated, and in illustration of the second I may point to Satyamangalam in which the figures in the four-anna column are meant to represent a general four-anna outturn, while in Dhárápuram and Polláchi it means four annas and under, a considerable portion being, in fact, almost a complete failure.

15. The fact that throughout a considerable portion of the district from 40 to 50 per cent. of the whole area under cultivation with food-grains should produce not more than a quarter crop would seem at first sight to be a very serious matter indeed, but the significance to be attached to it is considerably modified when it is remembered that this area comprises only the poorest lands, the total possible outturn on which represents a comparatively trifling portion of the aggregate food-crop of the district. The failure of the crop on the poorer lands of the district is not an unusual thing, and Mr. Nicholson quotes in his Manual, as a fact borne out by the observation of others, the *dictum* of Mr. Wedderburn that half and one-fourth crops are the rule rather than the average for the dry lands not under * wells.

* Pages 141 and 220 of the Coimbatore Manual.

16. The wet crops under the most important channels of the district have been good hitherto, and recent freshes in the Bhaváni and Amarávati make it probable that they will continue to be so. Garden crops have been either good or fair; some of the better class of dry lands have produced fair food-crops except in tracts here and there, and it is as yet premature to say that the important money-producing cotton crops on black soils will not at least be fair. Against these redeeming considerations, there is to be set the fact that in some parts of the district at any rate the failure of the crops on poor lands is following on a similar failure for a series of years and prices seem to be steadily rising.

17. Applying the above considerations to the remarks which I have made with regard to each taluk, it seems to me that no anxiety need be felt with regard to the taluks of Kollegál, Bhaváni, Karúr, Satyamangalam and Erode. With the singularly partial local distribution of rain, which I have frequently alluded to as a feature of the year, I cannot say that even in these taluks there may not be small tracts in which there may be individual distress, but the general prosperity of the locality seems to be such that there will be no want of labor. The Coimbatore taluk, on the whole, is not in a bad condition, but in certain tracts, such as the Bolampatti valley, the valleys of the Bhaváni and the Siruvani, and the villages adjoining Sirumugai and Irumbarai, the dry crops generally have been very poor. In other parts the cholum crops have been fair or good, and cholum fodder is being sold at enormous prices for transport to Palladam and even to Dhárápuram and Udamalpet. Many of the garden crops now on the ground are very fair indeed and some are a delight to the eye. Horse-gram has failed to a great extent, but recent rain throughout a great part of the taluk must have greatly improved the cotton crop. In Palladam there was short rainfall in part of the taluk, but good rain elsewhere; and, as a consequence, the comparatively satisfactory statistical information given above for the taluk as a whole conveys no adequate idea of the state of the tract adjoining Pollácbi. The large export of fodder from the Coimbatore taluk to parts of Palladam indicates an extensive failure of the early crops, and the eastern part of the taluk will be included in the tour on which I am now about to start. The Sub-Collector is not anxious about Dhárápuram and prices are

not very high, but the short rainfall and the extensive acreage on which there was practically a complete failure of dry food-grains and horse-gram makes me think it desirable to have further inquiries made, and I have asked the Sub-Collector to do so. I shall also go there myself. In Udamalpet the rains have been deficient and the failure of dry-grain crops exceptionally great, but Udamalpet is a wealthy taluk owing to the magnificent cotton crops which occupy 20 per cent. of the cultivated area, and are mostly grown on black-soil, and it is reported that there is still plenty of work for the laboring class. Though there was little rain in November and none in December, there were nearly 20 inches in October and a crop of from 8 to 12 annas is expected on the black-cotton soils. If this expectation be realised, the work now reported to be available for the laborer class is not likely to fail before the next kar rains set in. From the Polláchi taluk, the worst reports have been received owing to the unusual failure of the south-west monsoon in that taluk, and the consequent loss of dry-grain crops on poor soils following in two or three indifferent years. With regard to complaints from ryots in the eastern part of the taluk, the Head Assistant Collector writes: "Knowing as I do that the lands in question have yielded little or nothing last year and little or nothing this, I certainly believe the present complainants are in considerable distress. A day or two ago I came from Polláchi to Palladam, travelling through all the most affected parts of my division. Cumbu has been reaped: in some fields, the stalks were a foot or two feet high. They should be six feet or more. Gram is almost dead. Ulundu, country-beans, dholl, &c., are in good fruit, but it is dead or dying. Cotton plants are small; many are withered entirely and hardly any have got flowers." He goes on to say that the request made to him by some people that Government should provide work seemed premature, but it is well to realise that relief-works will possibly be necessary before long and that, in the event of the south-west monsoon failing, a serious famine, at all events locally, is a certainty.

18. To sum up still more briefly my opinion regarding the different taluks is as follows:—

(1) No cause for anxiety at present.	Kollegál. Bhaváni. Karúr. Satyamangalam. Erode. Coimbatore (greater part). Dhárápuram (the northern part). Palladam (greater part). Polláchi (two-thirds).
(2) Require further inquiry and careful watching.	Coimbatore (tracts here and there). Palladam (portion bordering on Polláchi). Polláchi (portion bordering on Palladam and Udamalpet). Udamalpet (the whole). Dhárápuram (the southern parts).

19. It may seem to the Board that the suffering areas are not very definitely defined, but I have again and again alluded in this report to the singularly partial local distribution of the rainfall, and even in the most favored taluks of Kollegál, and Bhaváni, I have had complaints of withering crops here and there. As indicated in my remarks on Coimbatore, serious failure of crops is limited to tracts scattered here and there, and even in these tracts, this failure mainly affects only the poor soils, and to some extent particular classes of crops on these put down at particular seasons. In the midst of these tracts, well land is producing good crops, and even some of the better class of dry soils are not exceptionally bad. A similar state of things prevails in the other affected taluks though the tract in Polláchi is more extensive and less interspersed with fair crop as might be expected from the fact that it forms the watershed between the east and west coast systems of river drainage. Owing to the conditions of the affected tracts as above described, I certainly do not think a general remission is called for. A remission of, say, 25 per cent. all round would not be enough for the owners of none but poor soils who simply cannot pay their kists, while in the case of the owners of wells and good dry lands, even that amount of

remission is not called for. Those who have any surplus crop at all are getting very good prices for it; and cholum straw is fetching twice the usual price. What seems to me to be required is leniency in the enforcement of coercive process. There is no use in distraining a man's land to buy it in at a nominal price or to make an enforced sale of cattle; and following the principle laid down in G.O., dated 17th October 1877, No. 3124, I am instructing Tahsildars not to distrain, for the present, cattle, ploughs or dry lands other than well or black-cotton in the areas classed under the second head in paragraph 18 *supra*. A similar discretion will be exercised with regard to other tracts on occasion arising. The lists of cases in which such suspensions of collection are made will be laid before the jamabandi officer who will then decide with regard to each case whether the amount should be written off as irrecoverable. As the bulk of the assessment in this district is paid by men who own either wet land or wells or black-cotton soils or other property, I do not expect that the concession above mentioned will lead to so great a loss of revenue as would be incurred by a percentage remission all round, while the relief afforded will more equitably reach the real sufferers. At any rate, it will be the duty of the jamabandi officers to see that nothing is recommended to be written off which ought to be recovered.

20. With regard to any possible increase in the intensity of the distress, much will depend on the outturn of cotton, and on the whole estimates are fairly favourable. All garden crops, food-grains as well as money-producing crops have done, and continue to do, well and I am hopeful that the owners of poor soils who have lost their crops and who ordinarily supplement their own cultivation by daily labour or *waram* tenures, will continue to find an adequate supply of work until the kar rains set in. If these fail, we must be prepared to deal with distress on a large scale.

21. The Board has asked me to explain the cause of the high prices. With the abundant facilities for distribution by rail and by good roads prevailing in this district, it seems to me that high prices can only mean poor crops, and a partial exhaustion of stocks over a widely extended area outside the district as well as within it. The high price of cholum straw indicates scarcity of straw within the area over which it will pay to export it. From Coimbatore, where some of the cholum crops were good, straw was exported to Palladam, Polláchi, Udamalpet and Dhárápuram. The export to the latter three has fallen off as the late harvested crops came into the market.

22. I may add that there are as yet no indications of any abnormal increase of crime in the district.

23. I am arranging with the District Forest-officer, South Coimbatore, to throw open a certain amount of forest for free grazing as a temporary arrangement.

24. As requested in Board's Proceedings, dated 26th January 1891, Mis. No. 405, just received, I have the honor to forward the reports of the Divisional officers. I have not as yet received any official report from the Sub-Collector, but I forward a demi-official note in which he states he anticipates nothing serious. This corresponds with the opinion I have otherwise formed with regard to all his taluks except Dhárápuram, and I have directed him to proceed there and make further inquiries. Mr. Smith was too new to the Northern Division to send in a report at the beginning of this month, but he is coming in to Coimbatore in a few days and I shall talk matters over with him. As above stated I do not anticipate distress in his division.

ENCLOSURE No. 1.

From H. O. D. HARDING, Esq., Acting Head Assistant Collector of Coimbatore, to the Collector of Coimbatore, dated Coimbatore, 19th January 1891, No. 28 Genl.

With reference to your Circular of 24th December 1890, Reference on No. 2892-V.A., regarding the state of the season, I have the honor to forward the following report. I regret the delay in its transmission; it is due to the non-receipt of the Udamalpet Tahsildar's report. I have still not received that report, and am myself in doubt as to the state of Udamalpet, save in so far as it can be inferred from Pollàchi.

2. As regards Polláchi taluk, the year has been peculiarly unfortunate. The thunder showers of April and May were insufficient, and the north-east monsoon of last year having also

partially failed, water scarcity was felt everywhere. The people, however, had rain enough to sow; and sowed cholum over a large tract. The rains then held off till the middle of July. From the middle of July to the middle of August, there was fair rain at Polláchi and the villages south, north and west of it, but very little rain to the east.

3. Before this, however, the crops to the east of the taluk were dead or dying, and I think the rain they then received was too late and too little to be of much use. I think that many of the eastern villages got one-eighth or no crop; the south, western and north villages got from a 6-anna to a 12-anna crop.

4. In September there was no rain. In the western, southern and northern sides of Polláchi, cumbu, gram, dholl and country beans, &c., were sown by the moisture that remained after the August rains. There was then no rain until the 25th of October when during five days, some 18 inches fell. This saved nearly all the crops on the ground, but as there has been no rain since, they have yielded a 4 to 8-anna outturn. Over a large part of the taluk, to the east particularly, sowing was not commenced till after the October rain, crops sown then yielded or will yield from nothing to 4 annas. A rain in June would have given good kar crops and a rain in December, good second-crops; but those rains did not come.

5. There is, however, no cause for anxiety at present regarding the tracts lying west, south and north of Polláchi, and I may say also two or three miles east. The crops have been poor, but they have been from 4 to 8 annas in both seasons and the people, though impoverished, are not destitute.

6. Regarding the east portion of the taluk, wherein lie the villages specially mentioned by the tahsildar, I am anxious; the crops have entirely or almost entirely failed in both seasons of this year and in the north-east monsoon last year, while in the south-west monsoon last year the rains were late, and the crops not very good. The people have no food either for themselves or their cattle from their lands and are largely living on bought ragi. Cattle fodder comes from Coimbatore and Satyamangalam and is bought at Rs. 6, 7 and 8 a bandy-load. The people say they have no money to continue this state of things, that their cattle are dying or have been sold, and that they have no means of paying their assessment. As regards the poor ryots, this is no doubt true. Cattle are being sold for very low prices in the market, and the people are going away as coolies wherever they can get work. As regards wet crops I have nothing to add to the tahsildar's remarks. I recently inspected the wet lands of two of the Polláchi channels, and found they had generally a very good crop.

7. *Palladam.*—In this taluk there were fair rains in April and May and no more rain until September, consequently kar season crops must have done very badly. In that portion of the taluk which lies north of the Palladam-Coimbatore road, the autumn crops have done well or fairly well. There were good rains from the end of September to the beginning of November.

8. Cumbu was looking very well about Avanashi and Cheyore in October. Now about Súlúr 4 to 8-anna cholum is being reaped, and I see from the accounts that 8-anna samai has been reaped; cotton also looks fair; I believe about Tirupúr the crops are from poor to fair, and so they are down to some 6 or 7 miles south and west of Palladam. From there to the junction of Palladam taluk with Polláchi and Udamalpet they are very bad.

9. *Udamalpet.*—I have not seen lately, but I was there in June and know that the karpunjai crop was an entire or partial failure. The north-east crop was sown after the October rain. There has been no rain since. I am therefore afraid that the punjai crops are dead or dying and will give little or no outturn.

10. In the last few days I have received numerous petitions from villages east of Polláchi and from those parts of Palladam which adjoin Polláchi, praying for dry remission. The complaint is that both season crops have failed and that as a consequence, the people have no food for themselves or their cattle, and no money wherewith to maintain themselves and pay their kist. For some months in my rides about the villages, people have told me that they are worse off now than they were in the last famine, because this is a very bad year following a bad year, and they have neither food nor fodder, and no money left, whereas, in the famine, having had preceding good years, they had both food and fodder and money. This complaint is, I think, true of all small ryots. The ryot in all countries is a grumbler and his complaints are usually taken *cum grano salis*, but knowing as I do that the lands in question have yielded little or nothing last year, and little or nothing this, I certainly believe the present complainants are in considerable distress. A day or two ago, I came from Polláchi to Palladam travelling through all the most affected parts of my division; cumbu has been reaped; in some fields the stalks are a foot or two feet high. They should be six feet or more. Gram is almost dead. Ulundu, country beans, dholl, &c., are in good fruit, but it is dead or dying. Cotton plants are small, many are withered entirely and hardly any have yet flowered. The people say this crop will fail entirely unless we have rain in ten days. This seems probable, but a final opinion cannot be come to about cotton, till March or April.

11. As regards the people's request for dry remission, I do not know what to do, having no experience of the circumstances under which dry remission is given. I, therefore, merely state the fact that over the tract lying between some 4 miles east of Polláchi to 6 miles west of

Palladam the outturn has been nothing or 4-annas; that this follows on a 4-anna crop year, and that therefore the small ryots who have no savings will necessarily be unable to pay their kist. If you are in favour of dry remissions, 25 per cent. may be recommended in which case three kists only need be collected instead of four or the payment of assessment may be postponed till the people get their next crop which it is to be hoped will be after the next monsoon. Either of these courses involves the difficult question of fairly defining the affected area. A third course suggests itself, viz., that we should proceed with collections everywhere as usual; only in cases in which it is found that the ryot cannot pay without sale of his property, moveable or immoveable, that we should give him time, and refrain from sale. If we do this, without defining the affected area, it is open to the objection that all ryots will affect inability to pay and much trouble will result therefrom. I am therefore of opinion that an area should be defined within which we will either grant dry remission or suspend collections : against suspending collections is the objection that if dry crops fail this year also what then; shall we remit arrears or grant further suspension ?

12. There is not actual famine at present, as other parts of the district and other districts have yielded fair supplies of grain. There is, however, great scarcity of money, and food, though not at famine rates is dear : at present, in various places, harvests are going on and work is available, but by the end of next month, there will be very little work to be obtained. Cooly is commonly dear in my division, which means that coolies are not abundant. I am however afraid, that before the next rains can fall and ploughing recommence there may be some people, who have no food or money, in need of work. Some villagers of Mallacipalliem in the bad part of Palladam, suggested to me two days ago, when I visited their village, that Government should give them work to do, but I think their request was a little premature. At the same time, it is well to realise that relief works will possibly be necessary before long, and that in the event of the south-west monsoon failing, a serious famine, at all events locally, is a certainty. It occurs to me that considering the absolute lack of fodder and consequent inevitable decrease of agricultural stock, it will be a great advantage to the ryots if forest grazing is given them free till this scarcity is passed.

ENCLOSURE No. 2.

From M.R.Ry. T. GOPAUL NAIR AVARGAL, Deputy Collector of Coimbatore, to the Collector of Coimbatore, dated 20th January 1891, No. 13.

With reference to your endorsement on circular order to the Tahsildars, Refce. on No. 2892 V-G., dated 24th December 1890, I have the honor to report that I have inspected the southern and central sections of Coimbatore taluk (Bolampatty valley, Madakarai and Chettipalayam divisions). You have inspected the northern and north-eastern sections and the only part omitted is the Tadagam valley, that is, the one between the Gopanari and Bolampatty villages. I have however made inquiries from village officers and Revenue Inspector about that valley also, and have ascertained that there is no room for anxiety about it.

Cholum.—The Tahsildar's rough estimate of the outturn of this crop is ¼. I have inspected some of this in every part I had been to, and am of opinion that the average outturn may be taken at 6 annas, if not 8. The useful and productive ears have I found, been already cut in a vast majority of cases inspected and the absolutely useless ones consisting of chaff alone left on the ground.

Ragi.—The Tahsildar's estimate of the outturn is from ⅛ to ¼. I regret I was not able to inspect any field with this crop on, wherever I went, so that I can offer no remarks based on personal observations of this crop.

Cumbu.—I have inspected a large number of fields with this crop on in all the villages I have been to. I may generally state that, as in the case of cholum, the useful ears have already been cut and the useless ones left on the ground. This fact I ascertained from the nature of the stalks standing on the lands. My estimate of the outturn of this crop is 4 annas in the southern section and a little less in the Bolampatty valley.

(Kollu) Horsegram.—This I found to be a total failure everywhere with the exception of fractional fields here and there; and even in those cases the outturn would not be anything proportionate to the labour spent. The plants have become yellow and I do not think rain or dew will save the crop hereafter.

Cotton.—This is fair in black soil and very poor and almost withering in red soil. However, I don't think that the latter even would be a total failure if there be a rain or two in a few days. What I mean to say is that if there is any rain falling in a few days the plants could be saved.

Bengal gram or Kadalai was found to be very fair all over the places I inspected. Tenai and samai have also been found cultivated to a small extent and they have generally failed except in garden lands.

The garden lands (the lands having wells) have generally fared well and there is, I believe, no reason to fear any water famine in the immediate future in the outlying parts of the taluk.

This report deals with the matters referred to in your endorsements Nos. 16, 18 and 19, Petition of 1891, dated 6th instant, and they are herewith returned.

Resolution—dated 10th February 1891, No. 77.

The Collector's report will be submitted to Government, in continuation of Board's Proceedings, dated 7th January 1891, Mis. No. 54.

2. The Collector has since May last ridden or driven over a considerable portion of every taluk of the district. He has, since the beginning of November, visited Palladam, Udamalpet, Pollâchi and Coimbatore, and has made a somewhat detailed inspection of several tracts in the Coimbatore taluk, after it was known that the December rains had failed. He now proposes to start on a tour through Pollâchi, Udamalpet and Dhârâpuram beginning with that portion of the Pollâchi taluk, in which alone, he states, "the approach of anything like actual distress is indicated in the reports he has received."

The Sub-Collector has been round his division * making inquiries and reports that on the whole he is not disposed to think that there will be anything serious if the next monsoon sets in early enough. "The Head Assistant Collector," Mr. Sturrock states, "takes a less hopeful view of matters in his division, but it is only with regard to a strip east of Pollâchi and west of Palladam (the distance between the two places is 30 miles), that he expresses serious apprehension." The Board notes, however, that the taluk of Udamalpet, which the Collector considers, requires careful watching and where he states (paragraph 17) that the failure of dry crops has been exceptionally great, has not been visited by the Head Assistant Collector since May. The fact that the taluk was visited by the Collector to some extent lessened the necessity of a thorough inspection by the Head Assistant Collector, but the Board requests that the Collector will require all Divisional-officers to make constant tours throughout their divisions until all risk of serious distress in the district has ceased.

* Karúr. Erode. | Bhavâni. Dhârápuram.

Mr. Sturrock's tour in Kollegál in October last has satisfied him that there is no risk of anxiety with regard to that taluk, and he is of the same opinion in regard to the taluk of Satyamangalm, though he states that certain crops are far from good.

3. The report has been very carefully drawn up and gives full particulars of the rainfall, the extent of cultivation, and the outturn of crops in each taluk as compared with the average. The present prices of each of the more important food-grains are also given as compared with the average of the previous five years.

4. *Rainfall.*—The rainfall of the district, as a whole, and of each taluk from the 1st April to the end of December last, is shown in the subjoined statement:—

	Average of five years. INCHES.	1890-91 to end December. INCHES.
Kollegál	32·25	35·22
Bhavâni	26·99	27·58
Karúr	23·38	29·24
Satyamangalam	28·06	21·35
Erode	25·27	22·11
Coimbatore	21·77	19·59
Palladam	24·00	18·96
Dhârápuram	21·04	20·57
Udamalpet	20·52	26·91
Pollâchi	26·26	27·13
Whole District ...	24·83	23·52

The rainfall in Kollegál, Bhaváni, Karúr, Udamalpet and Pollâchi was above the average. In the first two taluks named, it was also fairly distributed over the cultivating months, though the Collector remarks that in Bhávani, as in many other portions of the district, the local distribution was very peculiar, and some tanks received a very poor supply. The unevenness of the rainfall has characterised both monsoons of the year in most of the southern districts. Particular tracts have been deluged while immediately adjoining tracts are suffering from deficiency of rain. In Karúr, Coimbatore, Udamalpet and Pollâchi, the crops were seriously affected by the want of rain

in particular months, notably so in Udamalpet and Polláchi, where the distribution was exceptionally bad. In Satyamangalam, Erode, Coimbatore, Palladam and Dhárápuram, the rainfall was below the average, and in all these taluks, with the exception of Erode, the deficiency has been, to some extent, aggravated by unsuitable distribution.

5. The area of dry lands cultivated up to the end of December throughout the district shows an increase, as compared with the average cultivation of the previous three years, of 50,000 acres, the figures being 2,214,600 acres, as compared with 2,164,600 acres, and the increase is general throughout all the taluks with the exception of Udamalpet and Dhárápuram, where there has been a decrease of 25,500 acres or slightly over 5 per cent.

The wet cultivation up to the end of December (106,850 acres) shows an increase of 4,300 acres as compared with the three years' average. The Dhárápuram taluk shows a falling off of 1,570 acres, Coimbatore of 448 acres and Bhávani of 313 acres. Two other taluks, Satyamangalam and Polláchi, show a slight falling off. Particulars are given by the Collector for each taluk of the outturn of the year's crops according to the estimates framed by the village karnams. According to these estimates, the outturn on about 600,000 acres of food-crops, about 44 per cent. of the total area so cultivated, will be about a quarter crop; on 550,000 acres there will be about half an average crop, while less than 200,000 acres will yield a full crop. Complete failure is expected in Dhárápuram on some 24,300 acres, out of 234,600 acres cultivated with food-crops, and on about 4,000 acres in Polláchi, as also on limited areas in other taluks. In reference to these outturn estimates, the Collector remarks that it must be borne in mind in considering them "not only that they are very rough estimates indeed, but that the entry of figures in a particular column, *i.e.*, as a 4-anna crop or an 8-anna crop, does not mean quite the same thing in one taluk as it does in another." As an instance of the first, he points out that he has given his reasons for believing that in the case of Kollegál the outturn has been underestimated; while in illustration of the second, he points to Satyamangalam, in which the figures in the 4-anna column are meant to represent a general 4-anna average, while in Dhárápuram and Polláchi the entries in the 4-anna column represent 4 annas and under, a considerable portion in fact being almost a complete failure. Referring to the enormous area shown as having given only a quarter crop, Mr. Sturrock observes : "the fact that throughout a considerable portion of the district from 40 to 50 per cent. of the whole area under cultivation with food-grains should produce not more than a quarter crop would seem at first sight to be a very serious matter indeed, but the significance to be attached to it is considerably modified when it is remembered that this area comprises only the poorest lands, the total possible outturn on which represents a comparatively trifling portion of the aggregate food-crop of the district." "The failure of the crop on the poorer lands of the district" he adds "is not an unusual thing, and Mr. Nicholson quotes in his manual, as a fact borne out by the observation of others, the *dictum* of Mr. Wedderburn that half and one-fourth crops are the rule rather than the average for the dry lands not under wells." The Board has no doubt that the Collector's view of the matter is correct, and it considers it extremely probable that the outturn on large areas has been shown as less than it really is, not merely because it is the tendency of village officers to give low estimates of outturns, but because the average with which the year's outturn is compared, has probably been taken at an unsuitable high figure. The district is constantly suffering from deficiency in the rainfall, and bad seasons are the rule and not the exception. During the six years ending June 1890, only one season, viz., that of 1889-90, is admitted in the annual Land Revenue Settlement Reports to have been a good one. The season of 1888-89 was good for dry crops in only two taluks. In 1887-88, the outturn is stated to have been less than the average. In the season of 1886-87, dry crops are stated to have yielded from 2 to 12 annas only. Exactly the same account is given of the yield of dry lands in 1885-86. In the season 1884-85, the outturn of dry crops is said to have been half the average in Polláchi and Udamalpet and part of Erode, and 6 annas and less in

the rest of the district. The Board is, therefore, quite prepared to agree with the Collector that the state of the district is not to be correctly gauged by a mere consideration of the figures of these accounts.

6. *Prices.*—The district prices for April, August and December last, and those ruling during the weeks ending 31st January and 7th February last, are given below compared with the averages of the three years before the famine, of the five years ending March 1885, and the five years ending March 1890; there has been a very great rise in price during the past few months, and especially during the past month, and present prices compare very unfavorably with each of the periods taken for comparison :—

Coimbatore.

	Rice.	Cholum.	Cumbu.	Ragi.
Scarcity rate ..	8·5	11·5	12·8	13·5
Average of 3 years ending 1875-76, *i.e.*, before the great famine .	13·62	21·41	25·45	26·45
Do. of the last 5 years ending March 1890	14·10	22·50	26·40	28·30
Do. of the previous 5 years ending March 1885	15·01	27·43	32·77	32·33
In 1889-90	12·86	22·87	27·14	29·11
Current year, 1890-91. April	12·60	22·60	26·10	28·60
Current year, 1890-91. August	11·20	19·40	21·60	24·50
Current year, 1890-91. December	11·70	18·80	22·20	24·40
During week ending 31st January 1891	11·28	18·04	20·79	22·07
Do. do. 7th February 1891	11·41	18·04	20·58	22·33

The figures taken represent, however, somewhat favorable years, and a consideration of the figures below, which show the prices for the thirty years ending December 1890 in the chief town of the district, will show that, putting aside 1867 and 1877 which were years of famine, considerably higher prices than those now prevailing have ruled for long periods together :—

Years.	Rice, common.	Cholum.	Cumbu.	Ragi.	Remarks.
	SEERS.	SEERS.	SEERS.	SEERS.	
1861	11·10	21·70	26·00	25·60	
1862	10·10	19·10	21·70	21·70	
1863	11·80	17·60	21·90	21·70	
1864	11·00	19·90	23·40	24·30	
1865	9·30	16·30	18·00	19·60	
1866	8·60	13·10	14·00	14·70	
1867	7·00	9·40	12·10	11·30	
1868	9·50	15·00	17·40	17·00	
1869	9·60	13·80	16·10	17·40	
1870	10·60	15·90	20·20	21·30	
1871	15·87	31·91	..	40·71	
1872	15·21	30·47	27·53	40·24	
1873	13·76	21·33	26·02	26·76	
1874	11·26	18·88	21·85	22·84	
1875	12·92	20·75	23·40	23·47	
1876	10·85	17·98	19·03	18·91	
1877	7·71	10·32	11·51	11·16	
1878	8·48	13·82	18·94	14·48	
1879	10·55	17·67	20·58	20·21	
1880	12·98	20·57	23·93	24·05	
1881	15·15	30·50	35·19	34·34	
1882	15·20	26·70	34·30	30·70	
1883	15·70	27·50	30·80	31·80	
1884	14·40	23·10	28·00	27·60	
1885	13·10	19·40	22·30	23·40	
1886	13·80	22·40	25·40	24·70	
1887	14·50	22·60	24·20	27·30	
1888	14·31	22·15	23·77	26·55	
1889	13·39	21·98	24·23	26·29	
1890	12·17	20·60	22·27	26·17	
Average of five years ending 1865 ..	10·66	18·92	22·20	22·58	
Do. do. 1870 ..	9·06	13·44	15·96	16·34	This includes famine years.
Do. do. 1875 ..	13·80	24·67	24·70	30·80	
Do. do. 1880 ..	10·11	16·07	18·80	17·76	This period comprises the prices in famine years.
Do. do. 1885 ..	14·71	25·44	30·12	29·57	
Do. do. 1890 ..	13·63	21·95	23·97	26·20	

7. *Remissions.*—The Collector estimates that it will be necessary to grant remissions to the amount of Rs. 63,400 in nine taluks. Remissions will also be necessary in the tenth taluk, Dhárápuram, but the amount cannot at present be calculated. No remission on dry lands is at present recommended by the Collector, but his instructions to Tahsildars not to distrain for the present cattle, ploughs, or dry lands other than well lands, or black-cotton lands in the more seriously affected tracts, are approved.

8. In paragraphs 16 *et seq.*, the Collector sums up the general conclusions at which he has arrived. He considers that there is no cause for present anxiety in any taluks but those noted in the margin. These taluks he considers need further inquiry and careful watching, but he observes that all garden crops in them, as in the district generally, have done well, and that the estimate of the outturn of cotton are fairly favorable. He is hopeful that the owners of poor soils who have lost their crops and who ordinarily supplement their own cultivation by daily labor or *varam* tenures (cultivating the land of others for a share of the produce) will continue to find an adequate supply of work till the next cultivation season.

Coimbatore, tracts here and there.
Palladam, portion bordering on Pollàchi.
Pollàchi, portion bordering on Palladam and Udamalpet.
Udamalpet, the whole.
Dhárápuram, the southern parts.

9. In the event of any material change for the worse in the circumstances of the district the Commissioner will at once visit the district and confer with the Collector as to the necessity or otherwise of taking any special steps to give relief.

(True Copies and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

Order—dated 19th February 1891, No. 127, Revenue.

Miscellaneous.

There does not appear to be any necessity at present to make special provision for employing the people, but the Collector should lose no time in drawing up a programme of works, making selections from the major and minor Irrigation works requiring repair, in communication with the Public Works Department. Estimates for the works selected should be prepared at once so that there may be no delay in starting them if necessary.

2. In order to stimulate the sinking of wells by loans under the Land Improvement Act, application will be made by wire to the Government of India for the extension of the more favorable rules to this district. The value of wells is thoroughly understood in Coimbatore, and this has been one of the foremost districts in taking loans, so that there is every reason to expect that the people will avail themselves freely of the special rules, if the advantages of these are properly notified and explained. Special Revenue Inspectors will be sanctioned on application.

3. There was general rain over the district last week, but it was found that it was too late to do much good. The effect of it should be reported.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

ORDER—dated 26th February 1891, No. 184 I., Public Works.

Communicated to the Superintending Engineer, IV Circle, who is requested to draw up, in communication with the Collector, a list of works suitable for the purposes of famine relief in the portions of Coimbatore district most affected by failure of crops, and to prepare estimates for the more important ones without delay.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, IV Circle.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 26th.

Recd. *Encl.*

G.O., 26th Feb. 1891, No. 184 I.

FEBRUARY.

Irrigation Works, Coimbatore District

Proceedings in the Revenue Department passing orders in connection with the preparation of lists of — for execution when necessary, communicated to the Superintending Engineer, IV Circle, with instructions.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers :—

From Major D. McN. CAMPBELL, R.E., Superintending Engineer, V Circle, to the Chief Engineer for Irrigation, dated Chepâk, 18th February 1891, No. 57 E.I.

I have the honor to submit, for early sanction, the following estimates, amounting in aggregate to Rs. 12,150, for improving the Santhavelur tank in Tiruvallúr taluk :—

	RS.
(1) For constructing a new weir and revetment	9,150
(2) For repairing the bund	3,000
Total ...	12,150

The necessity for the works is fully explained in the reports accompanying the estimates. These works would be suited as relief works in Tiruvallúr taluk.

No. 31 I.

Note by the Chief Engineer for Irrigation.

The Superintending Engineer has submitted, for sanction, two estimates for improving Santhavelur tank in Tiruvallúr taluk, Chingleput district—

	RS.
(1) Constructing a new weir and revetment	9,150
(2) Repairing the bund	3,000

The design for the weir requires reconsideration and modification, which will be made in this office after the necessary information regarding the soil and subsoil at the site has been received from the Superintending Engineer.

It is not, however, considered advisable to delay the repair estimate on this account as it will afford work for laborers, where relief is now much needed, and it is recommended for sanction.

CHEPÂK,
21st February 1891.

(Signed) H. E. CLERK,
for Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 27th February 1891, No. 187 I., Public Works.

The following estimate is sanctioned :—

Irrigation.
43. Minor Works and Navigation.
Irrigation and Navigation.
Works for which neither Capital nor Revenue Accounts are kept.
Chingleput Division.
Repairs.

	RS.
Repairing the bund of the Santhavelur tank, No. 3 of list of Imperial works, estimate	3,000

2. This sanction has been registered as No. 145 I. of 1890-91.

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Chief Engineer for Irrigation.
,, Superintending Engineer, V Circle, with four enclosures.
,, Examiner, Public Works Accounts.
,, Revenue Department.
,, Editors' Table.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 27th.

Recd. *Encl.*

G.O., 27th Feb. 1891, No. 187 I.

FEBRUARY.

Santhavelur Tank, Chingleput District

Estimates for improving the —, sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

From the Executive Engineer, No. II Periyár division, to the Superintending Engineer, VI Circle, dated 30th January 1891, No. 144 C.

I have the honor to forward, herewith, the reappropriation statement for this official year.

By this an additional grant of Rs. 14,000 will be required, but the Deputy Collector has informed me in a demi-official that he will be unable to spend the whole of the grant of Rs. 56,060 for land compensation.

Under these circumstances the original allotment may remain unchanged, the 14,000 being taken from land compensation.

The Deputy Collector has been addressed as to the exact amount which he will be unable to utilize, but the sum is considerable.

No. 142 P. R.

Copy, together with copy of the statement of modification of allotment, is submitted to the Chief Engineer, Public Works Department, for sanction, with reference to his memorandum No. 220 C., dated 16th January 1891.

(Signed) A. C. SMITH, Lieut.-Colonel, R.E.,
Superintending Engineer, VI Circle.

6th February 1891.

Telegram from the Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 18th February 1891.

Rupees 16,285 available for surrender under land compensation No. 2 Periyár division. Letter follows.

From the Executive Engineer, No. II Periyár division, to the Superintending Engineer, VI Circle, dated 16th February 1891, No. 140.

In forwarding, herewith, a statement showing the surrender of Rs. 30,285 from the grant sanctioned for compensation of land received this day from the General Charge Deputy Collector, I have the honor to inform you that at this part of the year I shall not be able to utilize the amount on works and therefore request that you will be good enough to arrange for its surrender after deducting Rs. 14,000 transferred for works (*vide* my No. 144 C. of 30th ultimo).

ENCLOSURE.

STATEMENT showing the amount of compensation disbursed and that which is likely to be spent and the sum that may remain unspent at the end of the official year 1890-91 out of the allotment for the several reaches and branch channels.

Name of the work.	Amount paid from 1st April 1890 up to 31st January 1891.	Probable amount that may be paid up to 31st March 1891.	Total.	Estimated amount of compensation by the Public Works Department.	Difference.	
					Decrease or amount not likely to be spent.	Increase or amount required over and above the estimate.
Periyár main channel.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Reach No. I ..	172 8 0	209 1 0	381 9 0	300 0 0	..	81 9 0
,, II ..	328 5 9	1,115 2 6	1,443 8 3	..	..	1,443 8 3
,, III ..	1,094 0 6	708 11 6	1,802 12 0	4,000 0 0	2,197 4 0	..
,, IV ..	1,018 13 6	..	1,018 13 6	8,455 0 0	7,436 2 6	..
,, V ..	7,507 12 6	349 12 3	7,857 8 9	10,975 0 0	3,117 7 3	..
,, VI ..	2,803 13 9	373 14 9	3,177 12 6	12,205 0 0	9,027 3 6	..
,, VII ..	1,952 1 10	54 14 9	2,007 0 7	5,315 0 0	3,307 15 5	..
,, VIII ..	..	3,000 0 0	3,000 0 0	7,000 0 0	4,000 0 0	..
Branch channel No. II.	4 14 4	10 0 10	14 15 2	810 0 0	795 0 10	..
,, ,, III.	1,533 3 4	272 7 3	1,805 10 7	1,000 0 0	.	805 10 7
,, ,, IV	2,233 15 9	1,031 5 10	3,265 5 7	6,000 0 0	2,734 10 5	..
Total ..	18,649 9 3	7,125 6 8	25,774 15 11	56,060 0 0	32,615 11 11	2,330 11 10

	RS.
Total amount that is likely to be spent in the current year is	25,775
Net amount that may remain unspent is	30,285

(Signed) M. TILLANAYAGAM,
Deputy Collector.

No. 185 P.R.

Copy, together with copy of the statement referred to, is submitted to the Chief Engineer, Public Works Department, in continuation of this office No. 142 P.R. of the 6th instant.

2. It will be seen that the amount that cannot be utilized from the grant for land compensation is Rs. 30,285-0-1, of which Rs. 14,000 having been proposed to be transferred to works in this office number quoted above, the net amount to be surrendered is therefore only Rs. 16,285.

TRICHINOPOLY,
19th February 1891.

(Signed) J. W. MARTIN,
Executive Engineer in charge VI Circle.

From J. W. MARTIN, Esq., Executive Engineer in charge VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 20th February 1891, No. 186 P.R.

With reference to your No. 862 C., dated 17th February 1891, I have the honor to state that the sum of Rs. 4,229 required to meet the increase in the centage charge for establishment can be met from the sum of Rs. 16,285 surrendered from the current year's grant for land compensation in this office telegram, dated 18th, and this office No. 185 P.R. of the 19th instant.

Telegram from the Chief Engineer, Public Works Department, to the Superintendent of Works, No. I Periyár division, dated Madras, 19th February 1891, No. 948 C.

Your telegram sixteenth. India wired for additional grant Rs. 70,000. No. 2 Periyár surrenders Rs. 12,000. Can you spend this in addition. Please wire.

Telegram from the Superintendent of Works, No. I Periyár division, to the Chief Engineer, Public Works Department, dated Periyakulam, 23rd February 1891.

Your telegram nineteenth. Can spend in addition the twelve thousand rupees.

ORDER—dated 27th February 1891, No. 188 I., Public Works.

The modifications of allotments for the No. II Periyár division shown in the accompanying statement, which includes the modifications proposed in the Superintending Engineer's endorsement No. 185 P.R., dated 19th February 1891, are sanctioned, and the net surrender of Rs. 12,056 is appropriated to the No. I Periyár division, making the total grant for this division Rs. 6,75,055.

2. The following deferred telegram will be sent to the Superintendent of Works, No. I Periyár division:—

"Your telegram 23rd instant. Additional grant Rs. 12,056 sanctioned. Send distribution statement."

(True Extract.)

(Signed) J. PENNYCUICK, Colonel, R.E.,
Secretary to Govt., P.W.D.

To the Chief Engineer for Irrigation.
" Superintendent of Works, Periyár division.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 27th.

Recd. *Encl.*

G.O., 27th Feb. 1891, No. 188 I.

FEBRUARY.

Funds

Additional grant of Rs. 12,056 made to No. I Periyár division.

Accompaniment to G.O., No. 188 I., dated 27th February 1891.

VI CIRCLE.

*STATEMENT showing the reappropriation of allotments (irrigation) for 1890-91.

Division.	Main head.	Sub-head.	Number of items.	Name of work.	Amount of estimate.	Existing grant for 1890-91.	Modification of allotments applied for.		Proposed grant.
							Reduction.	Increase.	
				49. IRRIGATION.	RS.	RS.	RS.	RS.	RS.
				CAPITAL EXPENDITURE ON PUBLIC WORKS NOT CHARGED AGAINST REVENUE.					
				North Main Channel.					
				First Reach.					
No. II Periyar division.	II. Main canals and branches.	B. Land ..	1	Compensation for land	34,545	300	..	82	382
		D. Regulators.	2	Head sluice to Peranai anicut ..	30,150	8,000	..	..	8,000
		Do. ..	3	Scouring sluice to do.	13,400	10,000	..	..	10,000
		Do. ..	4	Head sluice to Vadagarai channel ..	6,430	4,000	..	..	4,000
		E. Falls and weirs.	5	Fall and bridge at 2½ miles in lieu of plan No. 45	6,850	1,300	..	..	1,300
		F. Cross drainage work.	6	Culvert at ½ mile in lieu of plan No. 52 (1st mile)	7,265	3,800	..	..	3,800
		Do. ..	7	Culvert at 2½ miles in lieu of plan No. 52.	5,120	2,200	1,700	..	500
		Do. ..	8	Culvert at 2 miles 7 furlongs and 234 feet, plan No. 53	4,720	3,700	..	810	4,510
		Do. ..	9	Culvert at 3 miles 1 furlong and 470 feet in lieu of culvert plan No. 52 ..	4,140	1,500	..	..	1,500
		Do. ..	10	Culvert at 3 miles 3 furlongs and 500 feet, plan No. 53	4,140	3,000	3,000	..	..
		Do. ..	11	Surplus sluice of 12 vents for Ramarajapuram tank at 3 miles 7 furlongs, plan No. 54	32,400	8,000	..	1,000	9,000
		Do. ..	12	Culvert at Ramarajapuram tank ..	6,500	5,500	3,000	..	2,500
		Do. ..	13	Culvert at 5½ miles in lieu of plan No. 52.	3,500	150	49	..	101
		G. Bridges ..	14	Bridge for South Indian Railway ..	14,761	10,000	..	..	10,000
		Do. ..	15	Bridge in the 7th mile, plan No. 69 ..	5,167	300	..	..	300
		Do. ..	16	Accommodation bridge at 4th mile to replace the bridge built by ryots ..	3,340	1,000	500	..	500
		Do. ..	17	Bridge at 1st mile 4 furlongs 8·03 chains.	3,500	2,500	1,500	..	1,000
		K. Buildings.	18	Rebuilding 2 small rooms to the store shed at Peranai	100	100	..	..	100
		Do. ..	19	Demolishing rest-house at Natchikolam.	98	98	..	..	98
		Do. ..	20	Repairs to Natchikolam shed ..	233	233	..	..	233
		L. Earthwork.	21	Excavation main channel, 1st reach ..	1,40,655	35,000	3,000	..	32,000
		O. Miscellaneous.	22	Sluice to irrigate 50 acres at 5 furlongs 10 chains	430	430	..	..	430
		Do. ..	23	Irrigation sluice at 2 miles and 3 furlongs	800	800	..	..	800
				Second Reach.					
		B. Land ..	24	Compensation for land	5,710	..	..	1,443	1,443
		F. Cross drainage works.	25	Culvert at 8th mile in lieu of plan No. 52.	4,300	1,000	..	560	1,560
		Do. ..	26	Aqueduct of 3 vents at 10 miles in lieu of inlet and outlet, plan Nos. 57 and 58 ..	11,900	4,500	..	1,500	6,000
		Do. ..	27	Aqueducts of 2 vents at 10th mile in lieu of plan Nos. 59 and 60	18,000	5,000	..	..	5,000
		Do. ..	28	Cross drainage work No. 4 a 10th mile in lieu of inlet and outlet, plan Nos. 61 and 62	4,080	2,867	..	..	2,867
		L. Earthwork	29	Excavation main channel, 2nd reach ..	49,200	4,000	..	1,700	5,700
				Third Reach.					
		B. Land ..	30	Compensation for land	16,745	4,000	2,197	..	1,803
		D. Regulators.	31	No. I irrigation sluice	1,150	1,140	..	..	1,140
		Do.	32	,, II do. do.	1,150	1,050	..	..	1,050
		Do.	33	,, III do. do.	1,150	221	..	..	221
		E. Falls and weirs.	34	Drop at the end of second reach ..	2,140	..	..	1,000	1,000
		F. Cross drainage works.	35	Aqueduct of 2 vents at 11th mile in lieu of inlet and outlet, plan Nos. 63 and 64	23,500	15,916	..	..	15,916
		Do.	36	Superpassage at 12th mile in lieu of inlet and outlet, plan Nos. 57 and 58 ..	14,100	8,002	..	..	8,002
		Do.	37	Superpassage at 13th mile in lieu of inlet and outlet, plan Nos. 57 and 58 ..	12,800	5,187	..	..	5,187

Statement showing the reappropriation of allotments (irrigation) for 1890-91—*cont.*

Division.	Main head.	Sub-head.	Number of items.	Name of work.	Amount of estimate.	Existing grant for 1890-91.	Modification of allotments applied for. Reduction.	Modification of allotments applied for. Increase.	Proposed grant.
				Third Reach—*cont.*	RS.	RS.	RS.	RS.	RS.
No. II Periyár division—*cont.*	II. Main canals and branches—*cont.*	F. Cross drainage works.	38	Superpassage in the 14th mile in lieu of inlet and outlet, plan Nos. 57 and 58	13,500	9,098	..	..	9,098
		Do.	39	Aqueduct in the 15th mile in lieu of inlet and outlet, plan Nos. 57 and 58 ..	10,200	5,984	..	..	5,984
		Do.	40	Fourth superpassage or 6th cross drainage work at 15th mile 4 furlongs 8·93 chains in lieu of plan Nos. 57 and 58 ..	13,500	8,000	..	..	8,000
		Do.	41	Fifth superpassage or 7th cross drainage work at 15th mile 7 furlongs and 6·21 chains in lieu of plan Nos. 57 and 58.	13,500	8,000	..	..	8,000
		G. Bridges ..	42	Bridge plan No. 69	5,700	975	..	203	1,178
		Do. ..	43	First accommodation bridge plan No. 70.	3,500	3,500	..	..	3,500
		Do. ..	44	Second do. do. do.	3,500	1,055	..	500	1,555
		Do. ..	45	Third do. do. do.	3,500	1,988	..	..	1,988
		K. Buildings.	46	Rest-house at Andipatty	250	250	..	..	250
		L. Earthwork.	47	Excavation, 3rd reach	71,665	18,000	..	6,000	24,000
				Fourth Reach.					
		A. Preliminary.	48	Surveying and lock-spitting, 4th and 5th reaches	1,050	210	..	..	210
		B. Land ..	49	Compensation for land	8,455	8,455	7,436	..	1,019
		D. Regulators.	50	No. I irrigation sluice	1,150	1,000	..	..	1,000
		Do.	51	Proposed weir for Koravangolam tank.	520	520	..	60	580
		F. Cross drainage works.	52	Culvert at 17 miles 3 furlongs in lieu of inlet and outlet, plan Nos. 57 and 58..	5,400	5,400	1,000	..	4,400
		L. Earthwork.	53	Excavation main channel, 4th reach ..	25,000	8,532	..	6,468	15,000
				Fifth Reach.					
		B. Land ..	54	Compensation for land	10,975	10,975	3,118	..	7,857
		F. Cross drainage works.	55	Superpassage for Shattyar crossing in lieu of plan No. 65	17,000	9,000	..	..	9,000
		Do.	56	Superpassage for Marungiliar crossing in lieu of plan No. 66	21,500	9,000	2,000	..	7,000
		G. Bridges ..	57	Bridge at 18 mile 5 furlongs and 17·5 chains, plan No. 71	3,640	3,600	..	..	3,600
		Do. ..	58	Bridge plan No. 72	4,010	2,000	..	..	2,000
		K. Buildings.	59	Rest-house at Mettupatty	4,160	4,160	..	..	4,160
		L. Earthwork.	60	Excavation, 5th reach	29,035	12,000	..	4,000	16,000
				Sixth Reach.					
		A. Preliminary	61	Surveying and lock-spitting, 6th, 7th and 8th reaches	2,420	1,500	..	500	2,000
		B. Land ..	62	Compensation for land	12,205	12,205	9,027	..	3,178
		F. Cross drainage works.	63	Syphon culvert at 21 miles 4 furlongs 475 feet	4,300	..	..	1,000	1,000
		Do.	64	Syphon culvert at 21 miles 7 furlongs 322 feet	4,300	..	..	1,000	1,000
		G. Bridges ..	65	Bridge plan No. 72 at 21 miles 5 furlongs and 460 feet	2,600	..	..	1,000	1,000
		L. Earthwork.	66	Excavation, 6th reach	35,375	2,000	..	5,000	7,000
				Seventh Reach.					
		B. Land ..	67	Compensation for land	5,315	5,315	3,308	..	2,007
		L. Earthwork.	68	Excavation, 7th reach	22,405	..	..	1,000	1,000
				Eighth Reach.					
		B. Land ..	69	Compensation for land	7,475	7,000	4,000	..	3,000
		L. Earthwork.	70	Excavation, 8th reach	9,475	..	..	1,000	1,000
				Total, Main canals and branches ..	..	3,14,516	44,835	35,826	3,05,507
				Distributaries.					
				First Branch Channel.					
	(3) Distributaries.	A. Preliminary.	71	Preliminary expenses	2,335	1,000	..	..	1,000
		D. Regulators.	72	Head sluice in lieu of plan No. 37 ..	1,150	481	200	..	281
		E. Falls and weirs.	73	No. 4 fall and sluice combined, plan No. 37	1,144	572	200	..	372
		Do.	74	No. 5 do. do. do.	1,144	438	..	..	438
		Do.	75	No. 6 do. do. do.	1,144	714	300	..	414
		Do.	76	No. 7 do. do. do.	1,144	1,035	..	..	1,035
		L. Earthwork.	77	Excavation, 1st branch channel ..	13,530	4,000	..	..	4,000
				Second Branch Channel.					
		B. Land ..	78	Compensation for land	810	810	795	..	15
		D. Regulators.	79	Head sluice to 2nd branch channel, plan No. 37	1,150	193	..	..	193

Statement showing the reappropriation of allotments (irrigation) for 1890-91—*cont.*

Division.	Main head.	Sub-head.	Number of items.	Name of work.	Amount of estimate.	Existing grant for 1890-91.	Modification of allotments applied for. Reduction.	Modification of allotments applied for. Increase.	Proposed grant.
					RS.	RS.	RS.	RS.	RS.
No. II Periyár division—*cont.*	(3) Distributaries—*cont.*			Second Branch Channel—*cont.*					
		E. Falls and weirs.	80	First fall, plan No. 51	670	511	..	..	511
		Do.	81	Two falls, plan No. 51	1,280	482	..	..	482
		F. Cross drainage works.	82	Culvert across 2nd branch channel, plan No 68	730	730	..	..	730
		G. Bridges ..	83	Road tunnel in 2nd branch channel ..	400	400	..	..	400
		L. Earthwork.	84	Excavation, 2nd branch channel ..	5,500	2,113	..	..	2,113
				Third Branch Channel.					
		B. Land ..	85	Compensation for land	3,150	1,000	..	806	1,806
		D. Regulators.	86	Head sluice for 3rd branch channel ..	1,150	1,021	..	..	1,021
		Do.	87	Regulator, plan No. 39	480	480	200	..	280
		E. Falls and weirs.	88	Three falls, plan No. 51	2,310	2,300	800	..	1,500
		Do.	89	Two do. do.	1,520	500	300	..	200
		Do.	90	Two do. do.	1,440	500	300	..	200
		Do.	91	Three do. do.	2,010	2,000	1,000	..	1,000
		L. Earthwork.	92	Excavation, 3rd branch channel ..	9,240	7,826	..	..	7,826
				Fourth Branch Channel.					
		B. Land ..	93	Compensation for land	8,100	6,000	2,735	..	3,265
		D. Regulators.	94	Head sluice for the 4th branch channel, plan No. 36	1,840	1,840	..	..	1,840
		Do.	95	Head sluice from the 4th branch channel for subsidiary branch channel, plan No. 37	1,150	500	..	..	500
		Do.	96	Five regulators, plan No. 39	2,400	500	200	..	300
		E. Falls and weirs.	97	No. II fall for subsidiary branch channel of 4th branch channel	750	..	..	300	300
		Do.	98	No. 4 fall, 4th branch channel ..	730	..	..	300	300
		Do.	99	No. 5 do. do.	730	..	..	300	300
		Do.	100	No. 6 do. do.	730	..	..	300	300
		Do.	101	No. 7 do. do.	700	..	..	300	300
		Do.	102	No. 8 do. do.	700	..	..	300	300
		Do.	103	No. 9 do. do.	1,710	..	..	400	400
		G. Bridges ..	104	Three road tunnels, plan No. 41 ..	2,370	500	200	..	300
		Do.	105	Road tunnel and fall combined at 3,150 feet from the head sluice in lieu of plan Nos. 79 and 80	2,000	1,000	650	..	350
		Do.	106	No. II fall and bridge combined ..	1,720	1,000	650	..	350
		L. Earthwork.	107	Excavation, 4th branch channel ..	37,750	10,000	1,752	..	8,248
				Total, Distributaries ..	..	50,446	10,282	3,006	43,170
				Total for Works ..	..	3,64,962	55,117	38,832	3,48,677
				Establishment at 23 per cent. on Rupees 14,000 transferred from compensation for land to works	..	70,038	..	4,229	74,267
				Tools and plant ..	..	4,000	..	..	4,000
				Grand total ..	..	4,39,000	55,117	43,061	4,26,944

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following paper :—

APPLICATION for additional, or modification of, allotments in the Godávari Western division.

I CIRCLE.

APPLICATION for additional, or modification of, allotments in the Godávari Western division.

Financial budget and departmental heads, &c.	Government Order in which sanctioned items in budget.	Works.	Amount of estimate.	Outlay to end of previous year.	Original grant for current year.	Existing grant for current year.	Proposed. Increase.	Proposed. Reduction.	Amount at which grant for work will stand after reduction or increase.	Remarks.
			RS.	RS.	RS.	RS.	RS.	RS.	RS.	
43. Minor works and navigation. Agricultural original works— River embankments— Major	1	Raising embankment of Vainatiyan left bank.	26,400	14,990	11,802	11,802	..	702	11,100	Saving on the estimate not required.
	2	Raising embankment of Vasista Godávari left bank from below Gannaram aqueduct to Antaravadi.	28,535	28,016	..	531	..	300	231	
	3	Fixing boundary stones in Gowtami embankment.	2,700	2,062	..	653	..	380	* 273	
							..	1,382		
Minor	4	River embankment	..	..	..	1,200	..	900	* 300	
Repairs	5	River conservancy	..	..	13,000	13,000	..	2,000	11,000	Required for river embankments, for which money is urgently required.
	6	River embankments	..	..	26,000	16,000	2,000	..	18,000	
42. Major works— Working expenses ..	7	Extensions and improvements ..	..	..	18,000	28,700	..	4,000	24,700	Rupees 10,000 worth of materials have been indented for, but, as it is not possible to say how much will be supplied, Rs. 4,000 have been surrendered.

* Not required as the exact boundaries of the land have not yet been settled, the banks being thrown up long ago; whilst the demarcation is only now taken up every cent of land is disputed.

CHETTIPETT,
18th February 1891.

(Signed) B. H. YOUNG,
Executive Engineer.

No. 2184 G.D.

Copy submitted to the Chief Engineer for Irrigation for sanction. This application was received in this office only on the 19th instant.

20th February 1891.

(Signed) G. D. WYBROW,
Superintending Engineer, I Circle.

ORDER—dated 27th February 1891, No. 189 I., Public Works.

The sums surrendered from the grants for items 1, 2, 3 and 4, aggregating Rs. 2,282, are withdrawn and held in reserve under Agricultural original works.

2. The Superintending Engineers, IV and V Circles, will report at once if any additional allotments are required for works in their circles to provide work for the labor available owing to the failure of crops in Chingleput and North Arcot.

3. The amount surrendered from the grant for item 5 is appropriated to meet the demand for item 6.

4. The surrender of Rs. 4,000 from the grant for the Godávari Western division under 42. Major works (working expenses), extensions and improvements, is not accepted. The Superintending Engineer will see that proper arrangements are made at once for the existing grant under this head being as fully utilised as possible.

5. The following deferred telegram will be sent to the Superintending Engineer, I Circle :—

"Your No. 2184 G.D., 20th instant. Proposed modifications of allotments sanctioned except surrender under extensions and improvements."

(True Extract.)

(Signed) G. T. WALCH,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle.
" " IV "
" " V "
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.
" Revenue Department.

IRRIGATION.
ACCOUNT.

Govt. of {1891} Madras.

PUBLIC WORKS.

Dated February, 27th.

Recd. *Encl.*

G.O., 27th Feb. 1891, No. 189 I.

FEBRUARY.

Modifications of allotments

Sanctioning certain — I Circle, and directing Superintending Engineers, IV and V Circles, to report any additional allotments required by them.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

TABULAR STATEMENT OF MISCELLANEOUS PROCEEDINGS AND MATTERS OF ROUTINE.

IRRIGATION,

FOR THE MONTH OF FEBRUARY 1891.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Revenue report of irrigation works in the Punjab for 1889-90.—Observations of the Government of India on the —, communicated to the Chief Engineer for Irrigation.	2nd Feb. 1891, No 91 I.	......
Statistical table of some Indian canals.—The — by Major Clibborn, Executive Engineer, forwarded by the Government of North-Western Provinces and Oudh, recorded.	2nd do. do. No. 95 I.	......
River diagrams.—Certain — forwarded to the Government of India.	2nd do. do. No. 97 I.	......
Additional grant for the Rushikulya Project.—Telegram to the Superintending Engineer, I Circle, informing that the explanation of the necessary for — called for in G.O., No. 13 I, dated 5th January 1891, is urgently wanted.	2nd do. do. No. 98 I.	8th Nov. 1890, No. 645 I. 5th Jan. 1891, No. 13 I. 6th Dec. 1890, No. 727 I.
Progress reports of Minor Irrigation works.—Proceedings, Board of Revenue, reviewing the — up to the end of November 1890, recorded.	4th do. do. No. 99 I.	......
Tunnel under the Ellore canal.—Proceedings, Local and Municipal Department, communicating to the Municipal Council, Ellore, Proceedings, Public Works Department, sanctioning estimate for constructing a —.	4th do. do. No. 100 I.	......
Sketch map of the Vedarniem canal.—Letter from the Government of India requesting the tracing of the —, recorded.	4th do. do. No. 101 I.	3rd Sept. 1890, Nos. 474-75 I.
Grant under 43. Minor Works and Navigation.—Proceedings, Financial Department, sanctioning an addition of Rs. 25,000 to the —, communicated to the Chief Engineer for Irrigation.	4th do. do. No. 102 I.	22nd Jan. 1891, No. 67 I.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Transfer of funds.—Sanctioning certain — ...	10th Feb. 1891, No. 113 I.	......
Rushikulya Project.—The Government of India informed that an additional grant of Rs. 5,000 is required for the —.	10th do. do. No. 115 I.	......
Sangam anicut project.—The Government of India requested to furnish twelve copies of its selections No. CCLXIX, containing papers relating to the —.	12th do. do. No 122 I.	......
Progress reports of Nos. I and II Periyár divisions.—Ordered that the — for November 1890 be forwarded to the Government of India.	14th do. do. No. 125 I.	......
Forwarded	14th do. do. No. 126 I.	......
Tank Restoration works.—Proceedings, Revenue Department, approving and transmitting to the Financial Department programme of — proposed to be done next year, recorded.	16th do. do. No. 137 I.	15th Jan. 1891, No. 48 I.
Additional grant for the Periyár project.—Application to the Government of India for an —.	17th do. do. No. 141 I.	......
Financial results of irrigation operations throughout India for 1889-90.—Letter from the Government of India forwarding two copies of the pamphlet showing the —, communicated to the Chief Engineer for Irrigation and the Examiner, Public Works Accounts, for information.	17th do. do. No. 142 I.	......
Progress report of No. II Periyár division.—The — for November 1890, recorded.	17th do. do. No. 143 I.	......
Bantumilli canal.—Proceedings, Revenue Department, communicating Proceedings of the Board of Revenue, submitting letter from the Commissioner of Salt Revenue, stating that the Superintending Engineer reports that the widening and deepening of the lower reach — cannot be done until the next closure, recorded.	18th do. do. No. 146 I.	......
Kuppakurichi tank case.—Appeal against the decision of the District Munsif of Tinnevelly in the —, sanctioned.	18th do. do. No. 147 I.	12th Nov. 1889, No. 554 I.
Revenue report of irrigation works in Bengal for 1889-90.—Letter from the Government of Bengal forwarding copy of the —, recorded.	18th do. do. No 148 I.	26th Mar. 1890, No. 202 I.
Statement of objectionable items, V Circle.—Orders on Provincial — for period ending 30th November 1890.	18th do. do. No. 149 I.	......
Statement of objectionable items, VI Circle.—Orders on Provincial — for period ending 30th November 1890.	18th do. do. No. 150 I.	......
Transfer of funds.—Certain — proposed by the Superintending Engineer, I Circle, sanctioned.	18th do. do. No. 151 I.	......

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Statement of objectionable items.—Orders on Provincial —, VI Circle, for period ending 30th November 1890.	19th Feb. 1891. No. 152 I.	......
Statement of objectionable items.—Orders on Provincial —, III Circle, for period ending 30th November 1890.	19th do. do. No. 153 I.	......
Statement of objectionable items.—Orders on Provincial —, III Circle, Bellary division, for period ending 30th November 1890.	19th do. do. No. 154 I.	......
Progress report of No. I Periyár division—The — for November 1890, recorded.	19th do. do. No. 155 I.	......
Buckingham canal.—Endorsement, Revenue Department transferring Board's Resolution requesting to take special measures owing to the want of water in the —, throughout the Chingleput district, for opening and keeping the various bars which are closed at present, as the maintenance of the canal has a most important bearing on the results of local storage and sales of salt at certain factories, communicated to the Superintending Engineer, II Circle for early attention.	19th do. do. No. 157 I.	......
Transfer of funds:—The transfer of Rs. 4,400 from extensions and improvements to maintenance and repairs 42. Major works, Kurnool-Cuddapah canal, sanctioned.	19th do. do. No. 158 I.	......
Statement of objectionable items.—Orders on Provincial —, I Circle, for period ending 30th November 1890.	20th do. do. No. 163 I.	......
Statement of objectionable items.—Orders on Provincial —, IV Circle, for period ending 30th November 1890.	20th do. do. No. 164 I.	......
Statement showing grant and expenditure.—Comparative — to end of October 1890 with establishment percentage on works and repairs, recorded.	20th do. do. No. 165 I.	12th Mar. 1890, No. 163 I.
Priestman's dredger.—Telegram to the Director-General of Stores stating that the order for a — can be executed.	20th do. do. No. $\frac{165}{A}$ I.	6th Jan. 1888, No. 5 I. 26th Sept. 1890, No. $\frac{544}{A}$ I. 26th Nov. 1890, Nos. 690—92 I.
Statement of objectionable items.—Orders on Provincial —, II Circle, up to 30th November 1890.	23rd do. do. No. 173 I.	7th Jan. 1890, No. 13 I. 6th Mar. 1890, No. 145 I. 18th Mar. 1890, No. 179 I. 24th June 1890, No. 347 I. 21st Aug. 1890, No. 453 I. 24th Sept. 1890. No 540 I 4th Dec. 1890, No. 711 I.

Subjects.	Number and Date of Order.	Numbers and Dates of previous Orders.
Kodundurai tank.—Proceedings, Revenue Department, directing the abandonment of — in Trichinopoly district as an irrigation work, communicated to the Superintending Engineer, VI Circle, for information.	23rd Feb. 1891, No. 174 I.	......
Statement of objectionable items.—Orders on Provincial —, I Circle, up to 30th November 1890.	24th do. do. No. 178 I.	......
Statement of objectionable items.—Orders on Provincial —, II Circle, up to 30th November 1890.	24th do. do. No. 179 I.	20th Dec. 1890, No. 772 I. 18th Oct 1890, No. 1533 R. 23rd Sept. 1890, No. 538 I. 7th Nov. 1890, No. 640 I. 10th Oct 1890, No. 575 I.
Rushikulya project.—Orders that the Government of India be furnished with the explanation submitted by the Superintending Engineer, I Circle, of the necessity for an additional grant for the —.	25th do do. No. 182 I.	......
The Government of India addressed on the above.	25th do. do. No. 183 I.	......
Statement of objectionable items.—Orders on Provincial —, Periyár project, up to 30th November 1890.	27th do. do. No. 185 I.	15th Jan. 1891, No. 49 I. 23rd Dec. 1890, No. 771 I. 9th Oct. 1890, No. 565 I.
Statement of objectionable items.—Orders on Provincial —, Periyár project, up to 30th November 1890.	27th do. do. No. 186 I.	......